

## THE STATUS OF GENDERED ACCESS AND CONTROL OF LAND AND DAIRY PRODUCTS AND THEIR INFLUENCE ON HOUSEHOLD WELFARE IN MURANG'A COUNTY.

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**Abstract:** Gender inequality in access and control of all resources has been a major concern for many governments and other stakeholders. Many stakeholders have endeavored to design and implement various strategies and mechanisms aimed at advancing gender balance in all spheres of life. However, this objective has not been achieved. This prompted the need for this study that sought to investigate the status of access and control of land and dairy products by men and women and their influence on access and control of household welfare. The study was done in Murang' a County- Kenya. The study was guided by the following objectives: to identify the dairy products existing in male and female-headed households in Murang' a county, Kenya; to establish the status of access to land and dairy products by men and women and to establish the status of control of land and dairy products by men and women. The study was guided by the Women Empowerment Framework (WEF) espoused by Sarah Longwe (1991). The study utilized a cross-sectional research design. Purposive sampling technique was used to select Kigumo Sub-county as the area of the study.

Further, a simple random sampling technique was used to select four hundred and forty-two (442) male and female-headed households practicing dairy farming in the Sub-county to participate in the study.

Selected community leaders and key county officers were included as key informants. To generate the required data, the study utilized interview schedules for the selected male and female household heads, a guided questionnaire for the key informants, and an observation checklist. Quantitative data were analyzed through the use of Statistical Package for Social Sciences (SPSS) while qualitative data was analyzed on the basis of major themes derived from the study objectives. The study established that the existing dairy products in the study area included dairy cows, milk, manure, calves and biogas. The existing dairy products and land were found to be accessed by both men and women while control of the same was mainly by men.

**Keywords:** *Access and control, Dairy products, Gendered, Household welfare, land, Status*

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## 1.1 Introduction

Gender inequality in access and control of resources are closely associated with women's poverty, deprivation and segregation. In addition, there is a direct correlation between women's accessibility, use and control of the key resources and improved standards of living and protection of citizen's rights (UNDP, 2006). Studies have established that rural women plays a very important role in food production and sustenance (KHRC, 2003; UNDP, 2006; Kimani, 2016). It is important to note that gender inequality and inequity is a major issue in most of the countries across the globe. Very few countries have made some advancement in the promotion of gender equality in property, economic and social rights although none have achieved 100% gender balance (Ode, 2007). Unfortunately, women's access and control over property still remain a worldwide issue as depicted mainly in the growing economies such as Asia, Africa, and Latin America (World Bank report, 2013). These regions are still lagging behind despite their being signatories to the international, regional and national legal instruments and policy guidelines that promote gender equity (Odeny, 2013, World Bank, 2012). In fact, Rashid (2013) noted that in spite of the realization and acknowledgment of the need for gender equality in the agricultural sector, women across the globe still face significant barriers related to accessibility and decision making over vital resources such as livestock, land, houses as well as finances.

In relation to dairy production, the studies have shown that gender inequality is dominant in the provision of labor and distribution of benefits accrued from the undertakings (Paul et al. 2015, Seema et al. 2008). Studies show that regardless of the huge contribution of women in livestock production and management, their economic incentive and recognition remain insignificant (Tangka et al., 2012). In addition, approximately two-thirds of deprived livestock farmers are mainly women (Thornton et al, 2002). On the contrary, a study carried out in Nepal established that duties and responsibilities in dairy farming were jointly conducted by men and women in rural areas although, there was variations in the amount of labor contribution between men, women and children (Paudel et al., 2009). However, Rola and others noted that most women are not willing to improve their dairy production even after the advancement in technology. This is because when dairy farming is commercialized, the decision making in relation to its income and sometimes the entire initiative shifts ownership to men. This was found to be common due to women's minimum access to land and credit (Rola et al., 2006). The African Gender and Development Index (AGDI) (2004) survey in Africa revealed that women's land use rights were on average less than that of men. Additionally, the African Development Bank (ADB) report (2016) showed that the percentage of women landholders was extremely low; approximately 15% of women hold land, with differences ranging from 10% to 19.7% in Tanzania, Nigeria and Uganda (ADB, 2016). As a result, women are forced to access resources through their male relatives who are husbands, fathers, sons, or brothers (Bikaako and Ssenkumba (2006)).

Kenya is a signatory to various universal human rights mechanisms such as the African Charter on Human and People's rights besides formulating state laws such as the Constitution and Acts of parliament that are appropriate in enhancement and achievement of rights of every citizen, including social and economic rights for women (Kameri-Mbote, 2007, Kimani 2016). Unfortunately, just like any other country in the world, Kenya is faced with a lot of hindrances advancement and effecting of gender balance strategies, approaches and mechanisms in resource allocation, control, ownership and use. Though women are considered in the regulatory frameworks governing property ownership, control and access relatively, men are considered to have a superior right (KHRC, 2003), which in turn perpetuates and reinforces gender inequality. In many African countries, Kenya included, women, are accorded user rights to land but with no control or ownership rights (Njuki and Sanginga, 2013). This means that women are given an opportunity to plant vegetables and other subsistence crops which are mainly consumed at home but they cannot engage in commercial agriculture or claim ownership to the piece of land. This is further supported by the study by Kameri-Mbote (2002) that found that land in Kenya is specifically registered in the names of the male members of the households with very few being in the hand of women. It is estimated that women hold only one percent of land title deeds which accounts for 5% of registered lands nationally (KHRC, 2003 & NALEP, 2003). From the above accounts, it is clear that though the Kenyan legal and statutory framework account for equal rights for women in relation to economic and productive resources such as land, livestock, housing and other benefits and services accrued including extension and tertiary services, these rights are not yet realized (Karen, 2013). This is because the resources associated with zero-grazing dairy farming that could assist women in securing loans are in most cases under the ownership of men which includes land, cattle, milk and other dairy products (Karen, 2013).

In this context, it is clear that women have limited access and minimal control of all agricultural resources including land and dairy product although they provide the largest percentage of labor. It is also important to note that various studies carried out in various part of the world give different accounts on the status of gendered access to and control over agricultural resources including dairy products and land although most of them agree on the existence of gender differences in access and control of agricultural resources there has been no correlation between the gendered access and control of resources on the status of household welfare, the gap that this study intended to fill with a specific focus on dairy products and land as an important factor in dairy farming. The study also focused on dairy farming in Murang'a County and their influence on household welfare per gender.

#### **i. 1.2 Statement of the Problem**

Studies have established existing gender gaps in access to and control over agricultural resources. Evidently, gendered access and control over agricultural resources, products, means of production and utilization have its bias in that women are overly disadvantaged. This has resulted in an imbalance in access and control of land and dairy products between men and women which is likely to influence the achievement and adherence to the regulatory frameworks and mechanisms advocating for gender equality, equity and fulfillment of human rights. The problem of this study was informed by the observation that despite the remarkable progress at international, regional and national levels in addressing in advancing gender equality the gender imbalances still persist. Thus, the concern of this study which aimed at examining the status of access and control of land and dairy products by men and women in Murang'a County, Kenya.

#### **1.3 Purpose of the Study**

The purpose of the study was to examine the status of access and control of land and dairy products by men and women in Murang'a County.

## 1.4 Objectives of the study:

The study was guided by the following objectives:

1. To establish the dairy products available in male and female-headed households in Murang' a County
2. To examine the status of gendered access to land and dairy products and their influence on household welfare in Murang' a County
3. To examine the status of gendered control of land and dairy products and their influence on household welfare in Murang' a County

## 1.5 Research Hypotheses

The study sought to address the following null hypothesis:

H<sub>01</sub> There is no relationship between gendered access to land and dairy products and household welfare

H<sub>02</sub> There is no relationship between gendered control of land and dairy products and household welfare

## 1.6 Theoretical Framework

The study was guided by the Women empowerment framework by Sarah Longwe in 1994 to help planners in questioning the meaning of empowerment and equality in development activities, and in assessing the extent to which access and control of resources enhance empowerment. The framework defines women's empowerment as allowing women to be in control of their lives and participate fully and equally in the development process in order to promote their potential and have full control over the economic factors. Longwe framework views women empowerment as a tool to emancipate people from poverty by giving them the power to design their own lives. In the same concept, poverty is not brought by a lack of economic productivity, but from inequalities arising from gender discrimination and biases which is represented through subjugation and misuse. The framework further recognizes the gender gap that emanates from lack or limited access and control of agricultural resources between men and women. Based on the above facts, Longwe's framework sets the tone that equality in access and control of resources can result in increased empowerment. These can be depicted through the five different levels of women empowerment that is welfare, access, conscientization, participation and control which depicts the level of inequality between men and women that exist in society.

## 2.1 METHODOLOGY

The study adopted a cross-sectional research design which employed mixed research methods based on the study variables namely access, control, land, dairy products, men and women and their influence on household welfare. The study was carried out in Murang'a County, Kenya. The study focused on all households practicing dairy farming in Murang'a County. The target population of the study was all the seven sub-counties in Murang'a County that is: Kangema, Kiharu, Mathioya, Kigumo, Kandara, Maragua and Gatanga. In addition, the study also targeted the male and female-headed households that have engaged in dairy production for more than three years preceding the study period and those who had two or more dairy cows for the same period. The key informants of the study included the three (3) Chiefs from the three locations in Kigumo Sub-county, the Sub-county livestock production officers, the Sub-county agricultural officers, and the milk collection managers. A multi-stage sampling procedure was used to sample the study respondents. To start with simple random sampling was used to select Kigumo Sub-County out of the seven Sub-counties in Murang'a County. Thereafter all the locations in Kigumo Sub County were selected for inclusion in the study given that the Sub-county has only three locations that is Kinyona, Kigumo and Muthithi Locations. Further, a total of four hundred and forty-two (442) respondents who met the study criteria were selected from the list of dairy farmers obtained from the County Department of Agriculture as the respondents of the study. The key informants of the

study included all the chiefs’ from the three locations of the study, one Sub- County Livestock production officer, one agricultural officer and one Milk Collection Manager. The study findings were generated through the use of secondary from the reports and other documents from County offices while the primary data was generated through the use of three instruments namely: an interview schedule for the household heads, a guided questionnaire for the key informants and an observation checklist. The study used mixed research methodologies and therefore both qualitative and quantitative data was generated leading to the use of mixed methods of analysis. Ethical and logistical considerations and requirements were adhered to during data collection.

### 3.1 FINDINGS AND DISCUSSION

This section presents the findings and discussions in relation to the status of gendered access and control of land and various dairy products and their influence on household welfare in Murang’ a County. The study was based on the recognition that access and control of resources is a key aspect in the enhancement and promotion of human rights. The presentation and discussions is in three subsections: first, the analysis of the dairy products available in the selected households; second, gendered access to land and dairy products and their influence on household welfare; and third, gendered control of land and dairy products and their influence on household welfare within the selected households.

#### 3.1.1 Analysis of the dairy products in male and female households selected for the study

As shown in Table 1, all the male and female-headed households owned milk, manure, calves and dairy cows. Biogas was however owned by selected households with a near equal proportion between male and female-headed households.

**Table 1: Dairy products in households selected for the study per gender**

Dairy Products	Male HHS		Female HHS	
	Freq	%	Freq	%
Milk	289	100	149	100
Manure	289	100	149	100
Biogas	65	22.5	34	22.8
Calves	289	100	149	100
Dairy cows	289	100	149	100

Information gathered about each product is as discussed in the subsequent sections.

#### a) Milk

The study established that all the households selected for the study had milk as a dairy product although there was variation in terms of quantity produced. The study further established that the amount of milk produced depending on the number of dairy cows, the breed type and production per dairy cow. The milk produced was sold to their neighbors with no dairy cows and Murang’a County Creameries (MCC), with a lesser portion being consumed at the households in the study area. This, therefore, implies that milk production brings additional income to the families, part of which could improve its welfare, in addition to improved diet. The study established that milk production is the major reason behind dairy farming and that all the household heads work hard to increase its production on a daily basis. This is in concurrence with a study carried out in Tanzania by Bayer and Kapunda (2006) who reported the importance of milk production at the family level. Families were found to utilize revenue accruing from the sale of milk and its products to buy an extra piece of land, construct better houses and cowsheds,

establish small businesses, pay school fees for their children in colleges and secondary schools, and advance the dairy production.

**b) Manure**

Manure was found to be an important dairy product in the study area because of its use in boosting agricultural production. However, the amount produced depended with the number of dairy cows within the household. Manure was used for subsistence as well as cash crop farming. The cow dung used as manure was also used to produce biogas. Whatever the use, the study established that manure has a strong link with enhanced welfare either through increased food and cash crop production or saving of income on the use of fuel as cooking energy in the selected households with biogas. The same was confirmed through observation during fieldwork and through the interviews where one female household head reported: “.....*I use manure to grow vegetables for household consumption and sale.....*”

**c) Biogas**

Since biogas is generated from the cow dung, one common characteristic of the households with biogas is that they had more than three dairy cows, the purpose of which was to ensure enough production of cow dung to generate biogas. As shown in Table 1, there was no big variance between the percentages of male-headed households with biogas compared to female-headed households. Further analysis revealed that those households with biogas had higher income from dairy production and the household heads had secondary school level of education and above. Biogas was used in cooking.

**d) Calves**

As shown in Table 1 calves were found in all the households selected for the study. However, the number of calves was dependent on the number of dairy cows the households had. Some had as few as one calf and others with more than five calves at any given time. The study established that calves were mainly sold to generate income which both male and female households informed the study that money accrued was mostly used for hospital bills and school fees for the children. Other uses for the money was to improve on the household shelter and purchase of water storage tanks.

**e) Dairy cows**

All the households selected for the study from the three locations had dairy cows, this being the reason for selection. The number varied between 2 and 10 per household. Information gathered from the study respondents alluded to the fact that dairy cows were highly valued for milk production and were rarely sold for meat. All households, therefore, strived to feed and protect them from diseases purposely to increase milk production and calves. The respondents confirmed that dairy cows had a direct link on improved household welfare as confirmed by one male household head who had this to say: “*I have six dairy cows and currently each has borne one calf. Although the calves are still very young for a good sale, I am able to get 50 litres of milk per day, of which 15 litres is sold to my neighbors while the remainder is delivered to the Murang’a County Creameries.*”

**3.1.2 Status of access to land and dairy products and their influence on household welfare**

This subsection presents an analysis of access to land and dairy products as discussed below.

**a) Gendered access to land**

The land was included in this study as a factor of analysis for gendered access and control of dairy products and their influence on household welfare because of its importance as a means of production in agriculture. All the male and female heads who participated in the study across the three selected

locations had access to their land. In addition, all-male household heads who participated in the study reported that their female partners (wives) had access to land in the sense that they were allowed to utilize it in support and enhancement of dairy production in the household. The support was in the form of growing fodder crops and the construction of cowshed and calf pens to maximize dairy production. The null hypothesis ( $H_{01}$ ) testing revealed that was a relationship between women's and men's access to land and household welfare.

### **b) Gendered access to dairy products**

As analyzed in the previous subsection, the dairy products identified in the study area were milk, manure, biogas, calves and dairy cows. The gendered access of each is as discussed.

#### **i. Gendered access to milk**

All male and female household heads selected for the study across the three locations had access to milk. Access to milk entailed milking, selling and accessing the income generated from the sale of milk. The study established that milking and selling was done interchangeably by both men and women from the male-headed households. However, it was observed that married female household heads did not access the income from the milk sold to Murang'a County Creameries (MCC) because the money was paid directly to the bank accounts of their husbands. However, they accessed income from the milk sold to neighbors who did not have dairy cows. On the other hand, the widowed, single and divorced female household heads reported that they are able to access all the income generated from the sale of milk to MCC and to the neighbors. This was found to have a positive influence on household welfare. This was supported by one married female household head from Kigumo location who lamented that: *"Since the introduction of payment through the banks, most of us are left out during payment because men secretly visit the bank and withdraw the money. This money is spent on cheap liquor thus not benefiting the family."*

#### **ii. Gendered access to manure**

The study revealed that both male and female household heads selected for the study across the three locations had access to manure. Manure was mainly used for subsistence and cash crop farming depending on who accessed it in terms of gender. It was reported that male household heads prioritized use of manure on cash crops while female household heads prioritized its use on subsistence farming. Whether used on cash or food crops production, manure as a dairy product was found to have some influence on household welfare especially food production at the family level. The study found that both married and unmarried female household heads were able to use manure although married women were required to consult their male partners before use. This was supported by one female household head had this to say: *"Through the use of manure from the dairy cows, my kitchen garden can produce enough vegetables for consumption at the household level and the surplus is sold in the local market."* These findings concur with Galiè et al., 2015 study which reported that livestock manure was used to improve and increase the vegetable yield for either household consumption or sale by women and men. This can be associated with the fact that both studies were done in rural areas where dairy farming is mainly practiced. In addition, the manure collected from the dairy cows is mainly used in the production of cash and food crops for household consumption and the surplus is sold in the local market. This implies that an increase or decrease in the number of dairy cows per household determines the amount of manure produced which in turn influences food production at the household level.

#### **iii. Access to Biogas**

The finding revealed that both men and women from the selected households which were found to have biogas as a dairy product were able to access it. Access to biogas was mainly through its use in cooking

and in a few instances for lighting the homestead. It is important to note that only three households were found to use biogas for lighting. It was observed that access to biogas was mainly by women because of their involvement in food preparation and cooking. Further, it was established that access to biogas saved on fuel thus it had a direct influence on household welfare.

iv. **Access to calves**

The finding revealed that all the male and female household heads selected for the study from the three locations had access to calves. Further, the study established that even the female partners of the male household head selected for the study from the three locations had to access to calves. On the other hand, the married female household heads reported that their male partners also support in taking care of the calves where possible. This concurs with the study finding by Aregu (2014) that livestock management activities such as feeding the animal, watering and cleaning the pen remain to be women's role mainly under mixed crop-livestock systems. This implies that maintenance and feeding of calves are mainly by women because they are mainly at home although their sale is mainly men thus women are able to access but they do not get a direct benefit from them except the single, widowed, separated and divorced.

v. **Access to dairy cows**

The finding revealed that all the male and female household heads selected for the study from the three locations had access to dairy cows. Access to dairy cows entailed access to its products such as milk, manure, biogas and calves which as discussed in the previous section, all household heads were able to access. The role of dairy cows is also clear based on the previous discussion that all dairy products have a very significant influence on household welfare thus by extension dairy cows have a great influence on household welfare. This is in agreement with the finding by Galiè et al. (2015) that the animals were jointly owned by men and women. However, significant decisions that could result in major variations in livestock production such as the sale of cattle, were made by men because they were considered more knowledgeable compared to women. The null hypothesis was tested to a 95% level of confidence and 0.05 level of significance. The Chi-square analysis output of  $X^2 = 46.9$  for women and  $X^2 = 44.8$  for men with a P-value of 0.0 in both cases revealed that there is a relationship between women and men's access to dairy products and household welfare.

### **3.1.3 Status of control over land and dairy products**

As shown in Table 2, all the male household heads selected for the study from the three locations had control over land and all the dairy products. On the other hand, the study findings revealed that very few female household heads had control over land and dairy products.

***Table 42 Status of control of land and dairy products***



Resources	Control Over Land and Dairy Products								Null Hypothesis Testing	Gender	Chi-Square	df	P-Value
	Male Household Heads				Female Household Heads								
	Male HHS		Female Partner		Female HHS		Male Partner						
Freq	%	Freq	%	Freq	%	Freq	%						
Land	298	100	0	0	60	40.3	89	59.7	Null Hypothesis Testing	Male	<b>28.6</b>	<b>1</b>	<b>0</b>
										Female	<b>19</b>	<b>1</b>	<b>0</b>
Milk	250	83.9	48	16.1	90	60.4	59	39.6		Male	<b>13.4</b>	<b>1</b>	<b>0</b>
Manure	200	67.1	98	32.9	102	68.5	47	31.5		Female	<b>46.1</b>	<b>1</b>	<b>0</b>
Biogas	45	69.2	20	30.8	34	100	0	0					
Calves	298	100	0	0	65	43.6	84	56.4					
Dairy cows	298	100	0	0	65	43.6	84	56.4					

Further information generated from the study respondents and revealed implications of control over land and dairy products on household welfare are as discussed below.

**a. Gendered control over land**

The study established that control of land implied either men or women would decide where the cowshed and calf pen would be constructed and the portion of land to be used for planting fodder crops. The finding revealed that land on which the dairy production was being practiced was either family land registered in the name of the male except for the single, divorced and separated female household heads whose land was mainly registered in their fathers’ name or in the names of other male relatives or ancestral land which was under the custodian of the male family members. Despite the fact that the land was not mainly registered in the names of the female members of the society, the single, widowed, separated and divorced male household heads had more autonomy in relation to its use. Therefore, the study established that where women controlled land, a bigger portion of land was used to grow fodder crops compared to households where men controlled land.

As shown in Table 2, all the male household heads from the study area had control over land while very few female household heads who were either widowed, separated, single, or divorced had to control over land. Although it was reported that even among these groups of women, a few of them did not have control over land because it was controlled by their male relatives through a proxy.

This was reported by one widowed female household head who had this to say: *“My husband passed on four years ago leaving us with a piece of land which he had inherited from his father and this is where we live. However, his younger brother still has control over this piece of land such that I cannot make any decision on it without consulting him. In 2002, the proceeds from the sale of coffee declined and therefore most people around this area uprooted the coffee bushes and invested in planting dairy cow feeds. However, my brother-in-law prohibited me from uprooting my coffee bushes. I was left with no option but to abide by this decision.”* These finding concurs with a study by Kameri-Mbote (2002) which reported that the majority of the land in Kenya is registered under the names of male household heads. The situation leaves women with limited access and control to the land since men make decisions the land use. The null hypothesis testing confirmed that there is a relationship between control over land and household welfare as shown in Table 2.

## **b. Gendered control over dairy products**

The study established that control of various dairy products had a varied influence on household welfare as discussed below.

### **i) Gendered control of milk**

Control of milk entails making decisions on the amount of milk to be sold and the amount to be left at home for household consumption. It also entails deciding on how to use the income accrued from the sale of milk. The finding revealed that the majority of the male household heads had control over milk while a few reported that control of milk was by their female partners (wives). On the other hand, a bigger percentage of the female household heads selected for this study reported that they had control over milk as shown in Table 2. Out of this majority were divorced, widowed, separated and single while a few were married female household heads who had secondary level of education and above. The study established that in households where milk was controlled by women, more milk was left at home for consumption which improved the dietary provision of the family compared to households where men were in control. This is in line with a study by Rashid (2013) which reported that in spite of the realization and acknowledgment of the need for gender equality in the agricultural sector, women across the globe still face significant barriers related to accessibility and decision making over vital resources such as livestock, land, houses as well as finances.

Further, the study established that majority of the married female household heads did not have control over the milk because even if their husbands were not staying at home they controlled the sale of milk through a proxy. However, they were found to have more autonomy in relation to the amount of milk to be consumed at the household level per day. This was confirmed by one married female household head who reported that: *“I am the one who decides on the amount of milk be sold and the amount to be consumed at home although all the money accrued from the sale of milk is paid to him.”*

### **ii) Gendered control over manure.**

Control of manure involves deciding on how it will be used either in fodder crops for dairy cows, food, or cash crops. It also entails deciding on how to use the income accrued from the sale of manure. The finding revealed that out of all the male household heads selected for the study more than 50% had control over manure as shown in Table 2. The remaining few reported that their female partners are the one control over manure. The study established that male household heads who were in control of manure mainly prioritized cash crops at the expense of food and fodder crops which had a negative influence on dairy production and by extension influenced the household income and welfare adversely. On the other hand, out of the female household heads who had control over manure, the majority were either divorced, single, widowed or separated with very few married women. In these cases, the use of manure was mainly on food and fodder crops which led to enhanced dairy production and household welfare. The remaining few were the married female household heads whose male partners controlled the use of manure although not residing at home. In addition, a minority of the selected male household heads reported that other than using manure on cash crops, they also sell the remainder to their neighbors who do not have dairy cows. In addition, one widowed female household head narrated that: *“When my husband was alive, may the Lord rest his soul in eternal peace, he could not allow us to use manure on food crops and because of that we did not have enough food for the family. We used to spend a lot of money buying food for the family. And you know food from the market is never enough. However, nowadays I am able to distribute manure between the Napier grass, maize and vegetable farm thus boosting the food production and enhancing food security for my family.”* (Female household head in an interview held on 4<sup>th</sup> August, 2018). These findings support the report by KHRC (2003) that despite the fact that rural women are the

major food suppliers accounting for approximately 75%, they do not have control over the land and other economic resources that are necessary for maximum agricultural production and food security. Further, the study found that control of manure was influenced by the level of education of the household head in that in the household where male household heads was educated, they allowed their female partners to control manure.

**iii) Gendered control over biogas.**

Control of biogas entails making decisions to install or uninstall it at the household level. As discussed earlier in this report, biogas was found in very few households selected for the study in the study area as shown in Table 2. The study established that out of all the biogas in the study area, the majority was controlled by men compared to a few who reported that their female partners controlled the biogas at the household level. On the other hand, all the female household heads that had biogas had control over it as shown in 2. The study established that although access to biogas was mainly by women because it was used in cooking, the control of biogas was mainly by men through installation and maintenance in married male and female-headed households.

**iv) Gendered control over calves**

Control of calves entails being able to sell the calves at will. The finding revealed that all the male household heads selected had control over calves as shown in Table 2. On the other hand, less than 50% of the female household heads had control over the calves who were either widowed, single, separated or divorced. All the married female household heads did not have control over the calves. This could be closely associated with Kikuyu patriarchal culture that dictates that all animals borne or brought in the homestead belong to the household head who is mainly a man. This is in line with the study findings by Tegegne and Mesay (2012) which reported that regardless of the major contribution of women in livestock production and management, their capacity to make major decisions in relation to livestock remains insignificant because they do not have control over them.

**v) Gendered control of dairy cows**

The control over the dairy cows' entails being able to sell the dairy cows when there is a need. It also entails being able to control all the dairy products including milk, manure, biogas, calves and their benefits and the income accruing from them. The finding revealed that all the male household heads selected for the study from the three locations had control over dairy cows. They reported that their female partners cannot make decisions in relation to the sale of dairy cows without involving and consulting them. This means that all the married female household heads selected for the study from the three locations did not have control over the dairy cows. The study established that all household animals including dairy cows belonged to the household head who was mainly a man and that he was the one who decided when and how much to sell them when the veterinary officer will offer the veterinary services and the breed line for his dairy cows. Further, the study established that the household heads were very clear that it is against the Kikuyu culture for a woman to sell a cow in the presence of the husband even if the man does not reside at home unless he is dead. This is in concurrence with FAO (2013) report which indicated that substantial gender differentials are observed not only on the use and control of the benefits accrued through dairy farming but also in terms of making important decisions on strain selection, choice of livestock types to keep and the reasons for keeping specific livestock type in specific households.

Further, the null hypothesis testing revealed that there exists a relationship between women's and men's control of dairy products and household welfare. That where both men and women had equal access and

control of land and dairy products the household welfare was stable and better compared to where there was inequality in access and control by gender.

#### 4.1 Conclusion

Based on the findings and discussions, the study concludes the main driving forces for engagement in dairy farming in Murang'a County are milk, biogas, manure, dairy cows and calves and the benefits accruing from them. Further, the study concludes that access to land and dairy products was by both men and women while control of both land and the dairy products was mainly by men. In addition, the study established that access and control of land and dairy products by gender had a direct influence on the provision of household welfare.

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