HOUSEHOLD DEMOGRAPHICS AND INCOME LOSSES IN KYUSO SUB COUNTY OF KITUI COUNTY

Authors; P.M. Kithuka[1], T.I. Kanui[2], J.M. Kimiti[3]

[1]Peter Musyoka Kithuka, Ministry of Agriculture, Water and Livestock development Kitui County, drpeterkithuka65@gmail.com, P.O Box 289, Kitui, Kenya

[2]Titus Ikusya Kanui, South Eastern Kenya University, tkanui@seku.ac.ke, Box 170-90200 Kitui-Kenya.

[3]Jacinta M. Kimiti, South Eastern Kenya University, jkimiti@seku.ac.ke , Box 170-90200 Kitui, Kenya.

Corresponding author; drpeterkithuka65@gmail.com

ABSTRACT

The purpose of this study was to document determinant factors that influence income losses in due to livestock diseases in Gai and Mitamisyi study sites in the study area. A descriptive survey research design utilizing structured questionnaires to collect data was done. About 69.0% of households were male headed in both study sites. In both study sites, 64% aged between 35-59 years, 81% married, and 59% educated to primary level. The illiterate (17%), had more income losses than those who had secondary (16%) and tertiary (8%) education levels ($r=0.45$ for Gai and $r= 0.39$ for Mitamisyi) at $p<0.05$. About 70% and 14% of respondents were livestock and crop farmers respectively while 49% of respondents had a land size over 20 acres. Males headed households had more Tropical Livestock Units (10.4) than the females (3.4). There is need to come up with income loss predictive models and disease control contingency plans for the area.

Key words: income losses, livestock, tropical livestock units.

1.0 Introduction

Livestock supports livelihoods of up to one billion of the world's poor and landless (LID, 1999; Thornton *et al.,* 2000). Livestock is an important and sometimes overlooked element of the livelihood strategies of the poor. 70% of the world's rural poor depend on livestock as a component of their livelihoods (LID, 1999; FAO, 2002).

Livestock holdings are diverse and include cattle, buffalos, goats, sheep, pigs, chicken, horses and camels. Livestock are a crucial source of financial capital for the rural poor and are often one of the most important household cash income sources for the poor (Waters and Bayer, 1992).

It provides a critical reserve against emergencies and decrease vulnerability to financial shock from ill health, crop failures, and other risks. They yield direct benefits in form of food, wool or hide/skins and can raise farm productivity by providing manure and draught power. In a study of

poor livestock keepers in Bolivia, India and Kenya households in all the three countries ranked livestock above business and housing as their best investment (Heffernan *et al.,* 2002).

About 80% of the total land area in Kenya consists of arid and semi-arid lands (Okoti *et al.,* 2004) where constraining rainfall and temperatures provide limited options for sustainable land use, other than livestock rearing. Kenya's ASALs support more than 30% (approximately 12 million) people, 50% cattle, 70% sheep and goats, and the entire camel population (SRA, 2003).It is estimated that the livestock sector provides almost 90% of employment opportunities and more than 95% of family incomes in Kenya's ASALs (FAO, 2004). The livestock sub-sector in Kenya is a major component of the wider agricultural sector and contributes about 12% of the National Gross Domestic product (GDP) and 42% of the total agricultural GDP (SRA, 2003). In the vision 2030, livestock sub-sector was identified as one of the important flagship projects to accelerate development (DOP, 2008).

1.2 Problem statement

Kyuso Sub County in Kitui County is an arid and semi-arid (ASAL) zone characterized by low, unreliable and poorly distributed rainfall (DDP KYUSO, 2009). The area's economy is livestock driven since annual crops failure range between 60%-80% (DAO Kyuso Annual reports, 2010-2012). There are many reported livestock diseases which hinder achievement of maximum livestock productivity (DVO Kyuso Annual Reports 2008-2012).

1.3 Methods

The cross sectional study was carried out in Kyuso Sub County of Kitui County. The Sub County is divided into four administrative divisions, namely, Kyuso, Ngomeni, Kamuwongo and Mivukoni. The Sub County lies between latitudes $0^0$03' degrees, 380, 57' degrees east and has an area of 2,422.5square kilometers (DDO Kyuso, 2008).

The climate of the Sub County is generally hot and dry for the greater parts of the year, has bimodal rainfall pattern with short and long rains and are usually erratic. Then Gai sub location in Kyuso and Mitamisyi sub location in Ngomeni were identified as the where random sampling was used to select final respondents. Sample size was 100 respondents. Confidence interval (95%) and 5% significance level were used. Data was analyzed using Statistical Packages for Social Sciences (SPSS) version 18.

2.0 Results and Discussion

2.1 Gender of household decision maker.

About 73.1% and 64.7 % of the respondents were males for Gai and Mitamisyi respectively, while 26.9% and 35.3% were females for Gai and Mitamisyi. Gender had significant influence on incomes losses due to diseases. The study showed the majority of male headed households had significant lower income losses at r = (-0.23 for Gai and 0.3 for Mitamisyi) at $p<0.05$ than female headed households. This could be attributed to that most males have more resources, are proactive and have past knowledge in animal husbandry practices and are firm in decision making.

Chi square tests of associations showed that the gender of household decision maker in the two sites had significant associations at X^2(25.19, df=3 for Gai,15.89, df=2 for Mitamisyi) at $p<0.05$(Table 1). Gender refers to the social roles and identities associated with what it means to be a male or female (FAO, 2011). Men dominated livestock keeping activities in the two sites. This agrees with the findings of Moloi *et al* (2014) who reports that despite the gains that have been made with respect to gender equality, the distribution of resources and power has not shifted the gender

disaggregation in farming. Nwetle et al, (2005)) made similar observations across six countries of sub-Saharan Africa. Bukh,J. (1979) reported that men are most often the heads of households in Africa.

2.2. Age of respondents

On average for both study sites, 64% were aged between 35 to 59 years, 18% aged below 35 years and 21% aged above 60 years. Those aged below 35 years and over 60 years had significantly more income losses than those aged between 35 to 59 years. For those aged below 35 years, r= (0.36 for Gai , 0.44 for Mitamisyi) while those over 60 years r= (0.35 for Gai,0.31 for Mitamisyi) at $p< 0.05$ level of significance (Table 1).

According to Bembridge, (1987) an individual's age is one of the most important factors pertaining to his personality, because his needs, behaviour and thinking are closely related to the number of years of existence.

2.3 Marital status of the respondents

The majority of respondents were married (81.0%), followed by single, widowed and divorced at 8%, 6% and 3% respectively. The single, widowed and divorced had statistically significant income losses than the married at r (0.50 for Gai, 0.43 for Mitamisyi, 0.40 for Gai, 0.30 for Mitamisyi,0.30 for Gai, 0.36 for Mitamisyi) at $p<0.05$ (Table 1). According to FAO, (2008) majority of married people are usually more responsible and tend to invest more. The results showed that the married had lower income losses at r= -0.30 and r=-0.40 for Gai and Mitamisyi at $p< 0.05$.Chi square tests showed that marital status had significant associations in the two sites at $p<0.05$ (Table 1).

2.4. Education levels

On average for the two study sites, the average 59% had primary level of education, 17% illiterate at 17%, 16% had secondary level while 8% had tertiary levels of education. Gai site had highest number (23.3%) of illiteracy. The illiterate had more income losses than the rest at r (0.45for Gai and 0.39 for Mitamisyi) at $p<0.05$. Chi square tests of associations revealed that there was significant relationship of educational levels at the two sites at X^2(12.19, df=3, for Gai and 8.39, df=2) for Mitamisyi at $p<0.05$(Table 1).

Education levels refer to mean years of formal schooling (Amwata, 2004). This agrees with earlier studies undertaken which show that, a total of 62% of Kitui County residents have a primary level of education only KNBS, 2013 while 25% have no formal education. Mwingi North constituency has the highest share of residents with no formal education at 30% (KNBS, 2013). In Africa, several studies have shown a positive relationship between education levels and agricultural productivity (Mwangi, (1998).

2.5. Main Occupation

About 70% were livestock keepers, 14% were crop farmers, 9% business people and 7% were employed. In a study of poor livestock keepers in Bolivia, India and Kenya households in all the three countries ranked livestock above business and housing as their best investment Heffernan *et al, (*2002). The benefits of livestock as a regular source of income, in terms of both cash and barter have been detailed in numerous studies (LID, 1999, FAO, 2002) so it's in agreement with the research. The studies also agree with others done by Mwobobia *et al.*, (2016), Kivunzya *et al*., (2018) which report livestock farming as a key livelihood activity in Kitui County

2.6. Household sizes and Type of housing

Majority (49%) of households had 1-5 family members, 47% had 6-10 members while 4% had over 10 members. The households with houses constructed with bricks/iron sheets/with toilets had the highest number (52%) of respondents. 20% had grass thatched/no permanent toilets structure type. KNBS, (2013) report indicates that the study area has a high number of grass/makuti roofs.

2.7. Land size and cultivated land in acres

About 49% had land sizes of over 20 acres, 35.2% had 11acres to 20 acres and 29.9% had below 10 acres. For those with over 10 acres of land, the land set aside for livestock keeping was more than cultivated land (60% for Mitamisyi and 48% for Gai). Test statistics revealed that land sizes and land for livestock use had a strong and positive correlations to main type occupations at r (0.53 for Gai and 0.63 for Mitamisyi) at $p<0.05$. The study showed land size had influence on the main occupation of respondents. This is in agreement with studies undertaken by Nyariki *et al* (2009) who found a positive correlation between farm sizes, choice of enterprises and production levels. Earlier studies of Chaudhry, (2003) showed that livestock holdings were positively related with land sizes, incomes and consumption of household.

Table1. Socio-Demographic Characteristics of respondents at Gai and mitamisyi study sites

Variable	Gai	Mitamisyi	Totals	Pearson's correlation test(r)	Pearson's chi-square (value- X^2)
Gender of Household decision maker					
Male	47 (73.1)	22(64.7)	69(69.0)	-0.23*,p=0.045 for Gai -0.3*,p=0.023 for Mitamisyi	isyX^2 =25.19, df=3,p= 0.003 for Gai X^2 =15.89, df=2,p= 0.045 for Mitami
Female	20 (26.9)	11(35.3)	31(31.0)	0.43**,p=0.02 for Gai 0.55**,p=0.03 for Mitamisyi.	
Age set categories					
below 35yrs	10(14.9)	8(23.5)	18(18.0)	0.36*, p=0.042 for Gai and 0.44*,p=0.02 for Mitamisyi	X^2 =15.39, df=3,p= 0.01 for Gai. X^2 =7.09, df=2,p= 0.04 for Mitamisyi.
35yrs-59yrs	45(67.1)	19(55.8)	64(64.0)	0.25*,p=0.01 for Gai and 0.11*,p=0.031 for Mitamisyi.	
above 60yrs	11(16.4)	7(20.5)	21(21.0)	0.35*,p=0.01for Gai and 0.31*,p=0.03 for Mitamisyi.	
Marital status					
Single	4(8.0)	4(11.0)	8(8.0)	0.50**,p=0.01for Gai,0.43**,p=0.024 for Mitamisyi	X^2 =12.19, df=3,p= 0.031 for Gai and X^2=16.21,df=p=0.01 for Mitamisyi.
Married	55(82.0)	26(76.5)	81(81.0)	-0.20*,p=0.01for Gai,	

				-0.13*,p=0.024 for Mitamisyi	
Widowed	3(7.0)	3(10.0)	8(6.0)	0.30*,p=0.04 for Gai,0.36*,p=0.043 for Mitamisyi.	
Divorced	2(3.1)	1(2.5)	3(3.0)	0.40**,p=0.01for Gai,0.46**,p=0.024 for Mitamisyi	
Educational levels					
Illiterate	15(23.3)	2(6.0)	17(17.0)	0.45*,p=0.000 for Gai 0.39*,p=0.003 for Mitamisyi	X^2 =12.19, df=3,p= 0.001for Gai X^2=8.39,df=2,p=.0. 015 for Mitamisyi
Primary level	35(52.2)	24(70.5)	59(59.0)	0.35*,p=0.02 for Gai 0.30*,p=0.04 for Gai 0.23*,p=0.04 for Mitamisyi.	
Secondary level	10(14.9)	6(17.6)	16(16.0)	-0.40**,p=0.04 for Gai -0.45**,p=0.031 for Mitamisyi	
Tertiary	7(10.5)	2(6.0)	8(16.0)	-0.41**,p=0.04 for Gai -0.39**,p=0.01 for Mitamisyi	
Main occupations					
Crop Farming	10(15.0)	4(12.0)	14(14.0)	0.2*,p=0.02 for Gai 0.15*,p=0.03 for Mitamisyi	X^2 =25.39, df=3,p= 0.004 for Gai X^2 =35.59, df=2,p= 0.001 for mitamisyi
Livestock Keeping	44(65.7)	26(76.4)	70(70.0)	0.40**,p=0.02 for Gai 0.50**,p=0.02 for Mitamisyi	
Business	5(10.4)	4(12.0)	9(11.0)	0.22*,p=0.034 for Gai 0.30*,p=0.04 for Mitamisyi	
Employment	4(7.5)	3(12.0)	7(9.0)	0.24*,p=0.034 for Gai 0.10*,p=0.04 for Mitamisyi	
Household sizes					

1-5	34 (51)	14(41.0)	48(48.0)	3.56,p=0.07 for Gai 5.32,p=0.17 for Mitamisyi	X^2 =5.39, df=3,p= 0.0056 for Gai X^2 =3.39, df=3,p= 0.008 for mitamisyi
6-10	30(48).	17(50.0)	47(47.0)	3.56,p=0.07 for Gai 5.32,p=0.17 for Mitamisyi	
Over10	2(1)	2(9.0)	4(4.0)	4.2,p=0.08 for Gai 3.3,p=0.20 for Mitamisyi	
Type of Housing					
Moderate executive	27(40.3)	11(32.3)	38(38.0)	1.45,p=0.266 for Gai 3.78,p=0.16 for Mitamisyi	X^2 =4.39, df=2,p= 0.07 for Gai X^2=7.39,df=2,p= 0.066 for Mitamisyi
Bricks/iron sheets/toillets	25(37.3)	17(50.0)	52(52.0)	1.85,p=0.066 for Gai 1.05,p=0.08 for Gai	
Grass thatched/no permanent toilets	12(18.0)	8(23.5)	20(20.0)	4.45,p=0.266 for Gai 2.45,p=0.32 for Mitamisyi	
Land size in acres					
Less than 10 acres	12(18.2)	4(11.7)	16(29.9)	0.16*,p=0.023 for Gai 0.21*,p=0.05 for Mitamisyi	X^2 =54.39, df=3,p= 0.014 for Gai X^2 =36.00, df=2,p= 0.023 for Mitamisyi
11 acres to 20 acres	23(34.8)	12(35.2)	35(35.2)	0.26*,p=0.023 for Gai 0.31*,p=0.05 for Mitamisyi	
Over 20 acres	31(46.9)	18(53.0)	49(49.0)	0.53**,p=0.004 for Gai 0.63**,p=0.01 for Mitamisyi	
Land for livestock farming					
Less than 5 acres	6(10.0)	4(11.8)	10(10)	0.13*,p=0.02 for Gai 0.18*,p=0.03 for Gai	
5 acres to 10 acres	20(30.0)	10(29.4)	30(30.0)	0.19*,p=0.041 for Gai	

				0.23**,p=0.01 for Gai	
				0.53**,p=0.04 for Gai	
Over 10 acres	40(60.0)	20(58.8)	60(60.0)	0.60**,p=0.00 for Mitamisyi	

***, ** significant at p < 0.05 level (2 tailed)**

3.0 Conclusions

Livestock keeping is the main source of livelihoods in Kitui County. There were very little differences in all variables for both sites although from different ecological zones. Income/Losses due to livestock diseases were high. The study showed that most of the socio-demographic factors were statistically significant at $p<0.05$ and men dominated livestock keeping activities in the two sub locations. The gender of household decision maker played a crucial role in livelihood strategies. The majority of households with males as decision makers had fewer losses of incomes due to livestock diseases than female headed households. The age sets categories were key indicator of the type of livelihood activity being undertaken. Age according to the study is likely to influence the main income occupation enterprise choices, levels of indigenous knowledge and livestock disease control methods. The study showed that the aged, widowed and majority of more educated had lower tropical livestock units than the less educated. The study showed that the majority of the married had more tropical livestock units. The study showed that majority of respondents had primary education and level of illiteracy was high. Higher levels of education in most of the cases were associated with lower levels of loss of incomes due to livestock diseases. The main income sources and occupation of the household heads was livestock keeping at 65.7% for Gai and 76.4% for Mitamisyi. The results also agree with studies undertaken which show that 70% of the world's rural poor depend on livestock as a component of their livelihoods. The study showed that most households had an average of 1- 5 members with means of 48%, followed by 6-10 members. Incomes from livestock and products were used to invest and construct houses. The study showed land size had a major influence on the main occupations of respondents and livelihood losses.

4.0 Recommendations

Contingency plans should be put in place to enhance the preparedness for the control of livestock diseases outbreaks. The role of socio demographic factors in livelihoods strategies of the rural communities should be strengthened further. Gender mainstreaming in livestock enterprises should be enhanced and broadened. The education of the society should be critically looked into as it has a lot of influence on income losses among other variables. More resources (National and County) need to be channeled into disease control and prevention. More research should be undertaken and come up with income/livelihood losses predictive model**s.**

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