

The Relationship between Innovativeness and Performance of Commercial Small scale Dairy Enterprises in Kenya

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Abstract

The purpose of this study was to understand the relationship between Entrepreneurial Orientation (EO) and Performance of commercial small scale dairy enterprises in Nyeri County, in Kenya. One of the research objectives was to explore if innovativeness, one of constructs of EO, played a role in performance of a dairy enterprise in Nyeri County. The participants were owner/managers of commercial small scale dairy enterprises in Mathira East and Mathira West Sub-counties of Nyeri County in Kenya. The study used a survey approach to explore the role innovativeness played in the performance of the dairy enterprises. A sample of 191 was chosen from the total population of 2,824 small scale dairy farmers practicing dairy farming commercially in Mathira east and Mathira west sub counties of Nyeri County. To collect primary data a questionnaire was used. Secondary data was got from reports and key informants /experts. The F-Test which is a statistic was used to test the overall regression model, while t- Test was used to test whether or not each of the independent variables of the study had a statistical significant influence or not on the dependent variable of the study. Reliability was assessed using Cronbach's Alpha. Data was statistically analyzed using SPSS Software. The results indicated that there was a linear positive relationship between innovativeness and commercial small scale Dairy enterprise performance in Nyeri County in Kenya which meant that an increase in innovativeness would lead to a linear increase in Dairy enterprise performance in Nyeri County in Kenya. The study concluded that the null hypothesis H_0 : Innovativeness played no role in the performance of commercial small scale dairy enterprises in Nyeri County, be rejected, and accept the alternative hypothesis H_a : Innovativeness plays a role in the performance of commercial small scale dairy enterprises in Nyeri County. The study recommended owner/managers and other stakeholders in dairy and other agricultural value chains to embrace entrepreneurship as this would help in adopting a mindset that encourages and practices innovativeness in the agriculture sector.

Key words: Entrepreneurial Orientation, Innovativeness, Smallscale Dairy Farmer, Enterprise, Performance

1. INTRODUCTION

1.1 Background Information

Globally farmers, agricultural enterprises, researchers and governments have recognized the need for a more entrepreneurial culture in the farming business. Research programs of the Dutch government and projects as described in de Lauwere *et al* (2002) as quoted by (McElwe, 2006). As a result of applied dairy research, development and extension over the last 20 years, Western countries have produced very sophisticated dairy production systems. Herd sizes have grown, efficient feeding systems have evolved and many farmers monitor (Moran, 2013) their dairy enterprises. However the productivity and efficiency of small holder dairy has not greatly improved over the last two decades.

According to Food and Agriculture Organization (FAO) statistics, the largest world milk producer is European Union with its present 27 member countries (142 million tones). However, going by country, India is the largest producer with over 94 million tones of which 55% is buffalo milk. New Zealand is the largest producer of cow's milk. Annual global milk production is estimated to be 644 million tones, of which 84% or 541 million tones is cow's' milk.

Tropical regions in parts of Asia, the Middle East, South/Central America and Africa account for one third of the measured cow's' milk produced annually throughout the world. Significant tropical dairy

industries can be found in Kenya, Zimbabwe, India and the Caribbean. However, dairy farming has been slow to establish in these regions due to limitations of the extreme climates, low quality tropical feeds that are generally high in fibre and low in digestibility, the diseases and parasites associated with hot and wet conditions and therefore milk yields per cow have been low and seasonal, (Walshe., *et al*, 1991). The status of the mindset, especially entrepreneurial orientation, of the players in dairy sector in these regions could have played a role in the poor performance.

Dairy production in Sub-Saharan Africa (SSA) has more than doubled over the past 30 years, with the most growth occurring since the mid 1970s. There are five types of dairy production systems in SSA namely: Pastoralism, agro-pastoralism, mixed farming, intensive dairy farming and peri-urban dairying. The highest milk producing countries in Africa are Ethiopia, Kenya, South Africa, and Sudan. Of these countries Ethiopia has the most cows whereas South Africa has the greatest milk production per cow. Among the top four milk producing countries, only two (Kenya and Ethiopia) are self-sufficient. Therefore, an opportunity exists to expand dairy production throughout Africa rather than needing to import dairy products, (<https://afs.ca.uky.edu/dairy/around-the-world>).

Within Africa, two different dairy industry models exist: modern and small scale. An example of the modern dairy industry is South Africa, which is similar to the United States. In South Africa, many dairy farms exceed 500 cows and use a Total Mixed Ration (TMR) feeding system. Kenya is known to be an example of the small scale dairy industry model in Africa, where 80% of dairies have fewer than 5 cows. Dairy producers and their families consume about 40% of the produced milk and the producer transports the remaining to a milk collection station. Cows are fed using grass and crop residues, with most forages being cut and brought to the animals rather than using grazing system, (<https://afs.ca.uky.edu/dairy/around-the-world>).

Kenya's milk yields remain significantly below international standards. South Africa and Argentina have yields ranging between 2,500 and 3,500 kilograms per year, while the USA stands at an average of 9,000 kilograms per year. The challenges identified to be hindering dairy enterprises realize the performance potential in Kenya are feeding, veterinary services delivery, breeding services, financial services delivery, milk production, extension services delivery and milk marketing. EO has not been identified as a major challenge that affects dairy performance in Kenya and this may explain why EO has not been given enough attention as a factor that would have a significant role in influencing performance of dairy enterprises.

Elenurm, (2012) explained entrepreneurial orientation as a concept that has to be studied on several levels. First, consider it as orientation of an individual who is searching for new business opportunities and then as processes, practices and decision- making activities at the level of an enterprise. The founders of the enterprise try to lead it in a direction that is consistent with their personal tendencies (Lumpkin and Lichtenstein, 2005). The behavior of the enterprise and that of the entrepreneur are likely to follow the same orientation in entrepreneur – led firms. Personal characteristics of the entrepreneur have been found to influence markedly the performance of an enterprise, (Milcah Mulu- Mutuku, 2005). The entrepreneurial orientation (EO) concept of an individual is understood to be a complex mix of personal and situational factors.

2. LITERATURE REVIEW

2.1 Innovativeness and Dairy Performance

According to the Discovery and Opportunity theory of Entrepreneurship by Schumpeter (1934), the entrepreneur, in this case the owner/manager, identifies how new combinations can be applied in production to enhance performance. The entrepreneur dis-equilibrates the market through his actions. The entrepreneur moves the economic system out of the static equilibrium by creating new products or production methods thereby rendering others obsolete. This is the process of "Creative destruction", (Bwisa, 2011), which Schumpeter saw as the driving force behind economic development, (Schumpeter, 1949).

A study by Mugambi *et al.*, (2014) indicated that optimization of farm efficiencies could increase milk yields while concurrently lowering its production cost. The success of the venture would depend on how the enterprise is run which in turn depends on the characteristics of the owner/manager and the policies guiding the operations. Therefore the entrepreneurial inclination of the enterprise is critical as this would determine decisions made to combine the available resources as well as execution of other managerial functions for optimal performance.

It has also been showed that the link between exposure to research and innovativeness as established in studies by (Kyrgidou & Spyropoulou, 2013; Rubera & Kirca, 2012; Zolfagharian & Paswan, 2009). Chao, Reid, & Mavondo, 2012; Rhee, Park, & Lee, 2010, established a link between innovation and performance based on EO. Moreover, these studies show that innovativeness may be consumer based.

3. METHODOLOGY

3.1. Research Design

This section provides the research design employed by the study. Research design is a strategy for a study and the plan by which the strategy is to be carried out (Orodho, 2008). It specifies the methods and procedures for data collection, measurement and analysis of data (Cooper et al., 2011). In this study, a survey approach was used. A survey strategy can be used as “an excellent vehicle for measuring attitudes and orientation” (Babbie, 2013).The research used exploratory research to understand the role of entrepreneurial orientation (EO) in dairy enterprise performance. Business environment was studied as research indicates it affects entrepreneurship development in firms, hence important to explore if it plays a role in performance of a dairy enterprise. The EO was studied at two levels, one at enterprise level which was done through examining the firm policies and two, the owner/manager entrepreneurial inclinations. The study was to understand whether the firm policies support or inhibit innovativeness, proactiveness, risk-taking and competitive aggression and how this influences the performance of the dairy enterprise.

The owner/manager innovativeness, proactiveness, risk- taking propensity and competitive aggression was determined by way decisions were made as well as general management practices. It was expected that the design would allow the researcher to deepen the understanding of the relationship between the variables, which was to understand the role of entrepreneurial orientation on performance of small scale dairy enterprises in Nyeri County. A survey design was used to explore this aspect. Exploratory and descriptive research method was applied during the study.

3.2 Target Population

According to Cooper & Schindler (2011), population refers to an entire group of objects/individuals having common observable characteristics. Kothari, (2008) defines it as an aggregate of all that conforms to a given specification. The target population of this study was the 2,824 small scale farms undertaking commercial dairy farming in Mathira West and Mathira East Sub Counties of Nyeri County (Source: Mathira West and Mathira East Sub counties 2016 annual reports). The researcher also interviewed ten stakeholders including livestock experts from different organizations working with the dairy farmers within Nyeri County. The Nyeri Livestock County office provided a list of the stakeholders.

3.3 Sampling Frame

This is the list of ultimate entities which may be people, households, organizations or other units of analysis (Mugenda, 2008). It is a physical representation of the target population and comprises of the units that are potential members of a sample (Kothari, 2008). In order to adhere to the sampling theory that advocates that all possible units in the target population be identified to enable probability for selecting a random combination be calculated, the Sub county Livestock offices of Mathira West and Mathira East was consulted to assist in identifying the target population which they gave the number as two thousand, eight hundred and twenty four (2,824).

3.4 Sample Size

A sample is a subject of a particular population. Sample size determines which population value can be estimated and be reasonably large enough to obtain accurate estimates (Mugenda, 2008) for the population. According to Yamane, (1967), the recommended formula for calculating the sample size was as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where n= the desired sample size

N= the population size, In this case is 2824

E= level of precision. In this case 0.07

Therefore,

$$n = \frac{2824}{1 + 2824(0.07)^2} = 190.327$$

The figure was rounded off to 191 respondents.

3.5 Sampling Technique

A sample of 191 was chosen from the 2,824 which was the total population of small scale dairy farmers practising dairy farming commercially in Mathira east and Mathira west sub counties of Nyeri County. The researcher used proportionate stratified random sampling method to generate the sample. The population was first divided into three sub-classes or strata to enable the researcher to categorize the dairy enterprises depending on the size of the dairy herd. The proposed three strata were farmers with: 1-3 dairy cows; 4-10 dairy cows and over 10 dairy cows. Simple random technique ensured that all entities of each stratum was given an equal chance (probability) and hence minimized bias. It was considered to be most efficient, optimal and expected there were no major differences in within-stratum variances (Kothari, 2008).

The proportions in the strata were 1694 (60%) farmers with 1-3 cows; 847 (30%) farmers with 4-10 cows; and 283 (10%) farmers with more than 10 cows. The sample was randomly drawn in similar proportions from each stratum of the population as shown in table 3.1 below. The proportions were worked out using the following formula derived from Tuchman, (1978).

$$\frac{Ps}{\sum Ns} \times n = ns$$

Where: Ps= Population in the stratum

$\sum Ns$ = Total population of the farmers participating

n = Required Sample

ns = Sample size per stratum

Table 3.1: Sample Size and Sample Determination

Stratum	Population		Sample
	Number of farmers (Ps)		Number of farmers selected (ns)
1-3 dairy cows	1694		115
4-10 dairy cows	847		57
Over 10 dairy cows	283		19
Total	2,824 ($\sum Ns$)		191(n)

3.6 Data Collection Instruments

The variables involved in this study require keen administration of the questionnaire while at the same time taking note of the non verbal behavior of the respondent. This allowed the researcher to capture individual behavior and attitude which have a bearing on person's inclination to being innovative, proactive, risking taking and competitive aggression. The environmental factors were also captured using the data collection instruments. In view of this the researcher conducted interviews using an interview guide, a questionnaire and an observation guide with allowance to make personal observations (appendices 2, 3 & 4).

4. RESEARCH FINDINGS AND DISCUSSION

✓ Innovativeness and Dairy Enterprise Performance

4.1 Reliability Test for Innovativeness

Cronbach's alpha coefficient, a popular method of testing for internal consistency (Bryman, 2012) was used to measure the reliability of the gathered data. The coefficient ranges between 0.00 and 1.00 with higher coefficients indicating higher levels of reliability. It should be at least 0.70 (Drost, 2012).

Table 4.1: Reliability results for Innovativeness

S/no.	Innovativeness	Factor Loadings
1.	Business plan has aided your dairy enterprise performance	.713
2.	Firm records, Business plan will enable you to get financial support such loans and grants for your dairy farming	.560
3.	Preparing farm records and keeping them in a safe place/location for easy access is necessary for dairy enterprise	.421
4.	Health management practices for parasite and disease control is important	.702
5.	Housing and management practices such as cleanliness, milking place, calf pen, milk storage facilities are always present in your dairy enterprise	.775
6.	Farm management techniques if put in place high productivity, high quality and efficiency in your dairy enterprise.	.873
7.	Your dairy enterprise always produces various saleable products/services	.660
Reliability Statistics		
Cronbach's Alpha		Number of Items
.765		7

To test the null hypothesis (Ho) that stated that Innovativeness plays no role in the performance of a small scale commercial dairy enterprise in Nyeri County, a reliability test was carried out. The test indicated a Cronbach's Alpha Coefficient of Innovativeness as .765 indicating that the measures were reliable since they were more than .700 therefore, regarded as fair. This translated to mean that the research tools were well constructed and measured what they purported to measure.

4.2 (a) Factor Analyzes

Factor analysis focuses on the internal-correlations among data to come up with internally consistent surrogates of the variable (Mugenda, 2010). Cooper and Schindler (2008) suggested that factor loadings of 0.7 and above are acceptable. Other researchers indicate that 0.4 is the minimum level for item loading. Hair *et al.*, (2010) illustrates that factor analysis is necessary in research to test for construct validity and highlight variability among observed variables and to also check for any correlated variables in order to reduce redundancy in data. In this study, factor analysis is used to reduce the number of indicators which do not explain the effect of independent variable on Performance of Dairy enterprises. Hair *et al.*, (1998) and Tabachnick and Fidell (2007) described the factor loadings as follows: 0.32 (poor), 0.45 (fair), 0.55 (good), 0.63 (very good) or 0.71 (excellent). Innovativeness had 7 items and none of the items recorded factor loadings less than 0.40. The factor loadings of 7 items for Innovativeness were ranging between 0.421 and 0.873. Items under Innovativeness were therefore considered to be valid for the constructs represented. Table 4.2 shows factor loadings for Innovativeness.

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4.2 (b) Factor Ratings on Innovativeness

Factor analysis was adopted in order to reduce the number of indicators or factors under the research variable and retain only those indicators relevant in explaining the study variable. Factor analysis is an exploratory tool used to help the researcher make decisions on whether the variables under investigation explain the dependent variable.

Table 4.3: Innovativeness Descriptive Analysis

Statement	Did not at all	Little Extent	Moderate extent	Great Extent	Very Great Extent	Mean	Std. Dev.
Innovativeness 1	0.0%	1.8%	13.8%	49.5%	34.9%	4.22	0.794
Innovativeness 2	5.5%	4.6%	27.5%	39.4%	22.9%	3.76	1.072
Innovativeness 3	0.9%	7.3%	25.7%	43.1%	22.9%	3.75	0.995
Innovativeness 4	1.8%	1.8%	18.3%	54.1%	23.9%	3.97	0.887
Innovativeness 5	2.8%	9.3%	27.8%	39.8%	20.4%	3.59	1.043
Innovativeness 6	10.1%	30.3%	22.9%	22.9%	13.8%	4.22	0.794
Innovativeness 7	0.0%	6.4%	12.8%	60.6%	20.2%	3.76	1.072
Total						3.84	0.970

This observation of low dairy enterprise innovation may have been due to factors within or outside the farms. Moreover this could have been an indicator that the Porters five force could be at play within most of the farms. On the other hand the low levels of dairy enterprise innovativeness may have been due to constraints faced by dairy farms. These constraints may have been due to inadequate finance, skills and low levels of technological adoption as a result of owner manager's entrepreneurial orientation.

Secondly, the innovative levels among the dairy farmers in Mathira were different due to personnel capabilities in terms of skills for dairy production. Most of the skills possessed by the personnel were acquired through training and attendance of field days, open days and international shows. Because of this training, attendance of field days, and open days consequently contributed to the exposure of personnel as far as production and marketing techniques were concerned. Therefore they translated some of the ideas into production innovations for use within the dairy farms. On the other hand the dairy personnel that were not trained had low levels of innovations. This was observed in having variety of saleable products which included value added products, breeding stock and manure.

Third source of innovation among the dairy farms in Mathira was linked to experience of the personnel within the dairy farms. The dairy farmers that had longer years of experience had been exposed to different production techniques and technologies. These exposures resulted in development of innovative ways of solving production and marketing problems. For example farmers in Mathira with higher experience had better marketing skills. These skills were developed through several years of using different marketing channels for the dairy products. Alternatively these dairy farmers had developed innovative ways to cope in periods of milk glut and shortages. Some of these innovative methods included identification of alternative markets. Further some farmers had developed contact with other milk traders or cooperatives over the years.

The results of the relationship between the innovativeness and performance in the dairy farms in Mathira were similar to those of other studies , for example some of the sources of innovativeness in Mathira dairy farms were similar to those behind the Discovery and Opportunity theory of Entrepreneurship by Schumpeter (1934).These results also showed that the link between exposure to research and innovativeness as established in studies by (Kyrgidou & Spyropoulou, 2013; Rubera & Kirca, 2012; Zolfagharian & Paswan, 2009). Chao, Reid, & Mavondo, 2012; Rhee, Park, & Lee, 2010, established a link between innovation and performance based on EO. Moreover, these studies show that innovativeness may be consumer based. A key finding of the study was that transfer of knowledge and the innovation by dairy farmers ultimately affected the performance of the dairy sector or value chains. Therefore the current study draws similar conclusions based on the results that were obtained in the analysis.

4.3 Correlation between Innovativeness and Dairy Enterprise Performance

This study used a combination of scatter plot diagrams and correlation tables to show the correlation analysis results. To find out whether there was linear relationship between Innovativeness and Dairy Enterprise Performance in Nyeri County in Kenya Pearson moment's correlation coefficients was used as suggested by Cohen, West and Aiken, (2003). The result of the finding was presented on Table 4.4 The

result indicates that the variables Dairy Enterprise Performance and Innovativeness had a strong positive relationship indicated by a correlation coefficient value of .487^{**}. This suggests that there was a linear positive relationship between Innovativeness and Dairy Enterprise Performance in Nyeri County in Kenya which means that an increase in Innovativeness would lead to a linear increase in Dairy Enterprise Performance in Nyeri County in Kenya.

Table 4.4: Innovativeness Correlations Coefficients

Variable		Performance of Dairy enterprises	Innovativeness
Dairy Enterprise Performance	Pearson Correlation	1	.487 ^{**}
	Sig. (2-tailed)		.000
	N	109	109
Innovativeness	Pearson Correlation	.487 ^{**}	1
	Sig. (2-tailed)	.000	
	N	109	109

^{**}. Correlation is significant at the 0.01 level (2-tailed).

Other than product moment correlation coefficient, linearity was also tested using scatter plot between Dairy Enterprise Performance and Innovativeness and the result in Figure: 1 clearly indicates that there was linear relationship between Dairy Enterprise Performance and Innovativeness. A scatter plot diagram is a graph showing the relationship between two quantitative variables. A scatter graph is used to investigate the possible relationship between two variables.

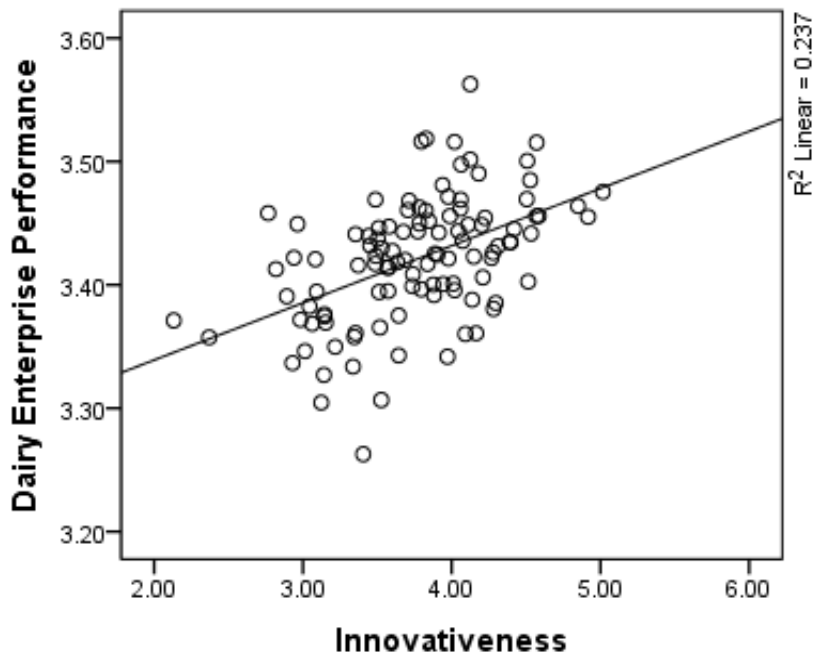


Figure 4.1: Scatter Plot between Dairy Enterprise Innovativeness and Performance

Correlation analysis between Innovativeness and Dairy enterprise performance indicated .487 that denoted that there existed a strong and positive linear relationship between Innovativeness and Dairy enterprise performance. This indicates that there exists a significant relationship between innovativeness and dairy enterprise performance which cannot be ignored. In order for a dairy enterprise to improve performance, there is need for owner/manager of dairy enterprises to embrace innovativeness. These

findings provide a strong support of the alternative hypothesis, that innovativeness plays a positive role in the commercial small scale dairy enterprise performance in Nyeri County.

4.4 Regression Analysis for Innovativeness and Dairy Enterprise Performance

Regression analysis is a statistical process of estimating the relationship between one or more predictor variables and the response variable. This study carried out regression analysis to understand the statistical significance relationship between the independent variable, innovativeness on the dependent variable which was Dairy Enterprise Performance. The objective was to establish the relationship between Innovativeness and commercial small scale Dairy Enterprise Performance in Nyeri County in Kenya. The objective was tested using the null hypothesis that; Innovativeness plays no significant role on commercial small scale dairy enterprise performance in Nyeri County in Kenya against the alternative hypothesis that; Innovativeness plays a significant role in commercial small scale dairy enterprise performance in Nyeri County in Kenya. The test was conducted using the linear regression model. From the model summary table, the strength of the relationship between predictor variable and the response variable is shown using correlation (R) or coefficient of determination R- square. The R-square is an indicator of how well the model fits the data.

An R- square value which is close to 1.0 indicates that the dependent variable entirely depends on the independent variables while a value close to 0 indicates no correlation between the explanatory variables and the dependent variable (Ming’ala, 2002).

Table 4.5: Model Summary of Innovativeness versus Dairy Enterprise Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.487 ^a	.237	.230	.04457	1.533

a. Predictors: (Constant), Innovativeness (X1)

b. Dependent Variable: Dairy Enterprise Performance

Table 4.5 shows the regression analysis findings between Dairy Enterprise Performance and Innovativeness. From the Table, the value of R- square was .237 at 0.05 significance level. This implied 23.7% of Dairy Enterprise Performance was explained by Innovativeness. This percentage is significant and shows how dismal performance would be if Innovativeness was to be ignored. This implies that there exists a positive relationship between Innovativeness and dairy enterprise performance.

ANOVA for Innovativeness (X)

This finding was further illustrated in the Analysis of Variance Table 4. 6 where an F-Statistics value of 33.314 was recorded with p-value of 0.000 which was less than 0.05. This therefore implied that there was a significant relationship between Innovativeness and commercial small scale Dairy Enterprise Performance in Nyeri County in Kenya. This meant that Innovativeness played a role on the Dairy Enterprise Performance in Nyeri County in Kenya.

Table 4.6: ANOVA for Innovativeness (X)

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	.066	1	.066	33.314	.000 ^b
	Residual	.213	107	.002		
	Total	.279	108			

a. Dependent Variable: Dairy Enterprise Performance (Y)

b. Model 1 Predictors: (Constant), Innovativeness (X₁)

Coefficients for Innovativeness (X₁)

From the coefficient Table 4.7 t- test was also used to test the relationship between the predictor variable Innovativeness and commercial small scale Dairy Enterprise Performance and there was significance relationship between the two variables with p-value= 0.000 < 0.05 for model and t-Statistics value being 5.772. The regression equations between the Dairy Enterprise Performance and Innovativeness for the model can be expressed as; $Y=3.246+ 0.046X_1$. The model indicates that for every

unit of Innovativeness, the Dairy Enterprise Performance value changed by 0.046. These results were also supported by the descriptive analysis.

Table 4.7: Coefficients for Innovativeness (X_1)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Model2	(Constant)	3.246	.031		106.411	.000
	Innovativeness	.046	.008	.487	5.772	.000

a. Dependent Variable: Dairy Enterprise Performance

From the results, the null hypothesis was rejected and we accept the alternative hypothesis and conclude that Innovativeness has significant influence on Dairy Enterprise Performance in Nyeri County in Kenya.

5. DISCUSSION

An entrepreneur needs to be innovative in the way s/he runs a commercial small scale dairy enterprise. One of the most distinguished attributes for entrepreneurs in any field is the ability to be innovative. In this study the indicators for innovativeness were strategic planning, Processes and saleable products. Under strategic planning respondents were required to answer questions on whether or not had prepared their Farm Business Plan, Kept records, and Types of records kept. Majority of the respondents (57%) did not have a farm business plan. Among the 57% who did not have the farm business plans said that a business plan is a complex undertaking that required expertise. This calls for capacity building extension staff on farm business plans development as they also expressed the same view as the farmers.

On the processes the study sought to find out the measures respondent had put in place to ensure efficiency in the Dairy enterprise, housing and Management practices as well as the health management and feeding practices. The study found out that 81% of the respondents were seeking ways to lower the production cost, 67% of the respondents were optimizing production, and 24% of the respondents were developing improved customer services while 7% of the respondents had rapid distribution channels. Enquiry was also done on reproductive or breeding innovation, the study found out that majority at 98% of the respondents were using ordinary Artificial insemination (AI), 79% of the respondents used sexed semen, 20% of the respondents were using natural mating reproduction while the embryo transfer reproduction innovation had still not been adopted.

On the saleable products the research enquired from the respondents whether they were doing milk value addition and the different saleable products and/or services the farm had. The result was that 79% of the respondents were cooling their milk before selling, 17% of the respondents were selling mala milk, and 7% were selling yoghurt while 3% were selling pasteurized milk. Also based on saleable products the study found out that 100% of the respondents had manure and raw milk as products, 78% of the respondents had breeding animals for sale, 17% had culls, and 13% had biogas while 1% offered training and extension services as products for sale from the dairy enterprise.

In this study the results indicated that there was a linear positive relationship with innovativeness and commercial small scale Dairy enterprise performance in Nyeri County in Kenya which meant that an increase in innovativeness would lead to a linear increase in Dairy enterprise performance in Nyeri County in Kenya. Therefore, innovativeness played a positive role in the commercial small scale Dairy enterprises' performance. The reason was that the relationship between Innovativeness and commercial small scale dairy enterprise performance was statistically significant at ($p < 0.000$) which led to the rejection of the null hypothesis, H_0 ; Innovativeness played no role in the performance of commercial small scale Dairy enterprises in Nyeri County in Kenya. The correlation findings of 0.487 denoted a fairly strong and positive linear relationship between Innovativeness and commercial small scale dairy enterprises performance. The results revealed that commercial small scale dairy enterprise whose owner/manager embraced strategic planning, applied innovative processes and had diversified saleable dairy products improved the performance of the dairy enterprises.

Findings from inferential statistics indicated that 23.7% of Dairy enterprise performance was explained by innovativeness. This therefore implied that there was a significant relationship between

innovativeness and the Dairy enterprise performance. This meant that innovativeness affects the Dairy enterprise performance in Nyeri County in Kenya. The model indicated that for every unit change in innovativeness commercial small scale Dairy enterprise performance value changed by 0.546. Therefore, the study showed that commercial small scale owner/managers practicing commercial dairy farming in Nyeri County in Kenya need to be innovative for the enterprise to perform optimally.

Over decades, strategies that have been emphasized over time include growth by expansion of land use, growth by expansion of animal production, enlarging capacity (vertical integration), external business, cooperation with other farmers, diversification, and different use of capacity by specialization or leaving farming. The owner/manager's and the farm policies entrepreneurial orientation as factors that contribute to performance of the farm have received little attention.

In the present era it is being recognized that entrepreneurs contribute to the development of a country in several ways like establishing conducive business environments by creating awareness through creativity and innovation; assembling and filling gaps of various inputs; value addition; by risk taking and planning; seeking opportunities through scanning environment; to reduce costs and increase quality and quantity; competition; expanding horizons of markets, and also supporting the growth of existing as well as of newly established enterprises. Entrepreneurial Orientation refers to the processes, practices, and decision-making activities used by entrepreneurs to act entrepreneurially that lead to the initiation of an entrepreneurial firm that engages in product market innovation, undertakes somewhat risky ventures, and is first to come up with 'proactive' innovations. Entrepreneurship contributes towards the economic development of a country especially by creating employment, service provision, new technology induction, product development and market innovation among other ways which ultimately reduce poverty and increases per capita income of the country (Batra, 2004). Research has shown that among major industrialized countries in the world, a very strong relationship between the level of entrepreneurial activity and annual economic growth exists (Mary, 2005).

6. CONCLUSION

H_{01} : Innovativeness plays no role in the performance of a commercial small scale dairy enterprise in Nyeri County.

This hypothesis was rejected because Innovativeness significantly affected Dairy enterprise performance of commercial small scale dairy enterprises in Nyeri County. Correlation of Innovativeness Versus Dairy enterprise performance gave a coefficient value of .487 denoting strong and positive linear relationship. The reliability test indicated .765 implying that the measures were reliable. The coefficient determination of R square was .237 implying that 23.7 percent of variation on Dairy enterprise performance was explained by Innovativeness. The significance of Innovativeness was 0.000 which was less than 0.05 implying that there was a significant relationship between Innovativeness and commercial small scale Dairy enterprise performance. The coefficient of Innovativeness was 0.046 implying a positive effect on Dairy enterprise performance. A single unit change in innovativeness increased Dairy enterprise performance by .046 units.

Innovativeness should be adopted by commercial small scale dairy enterprises in Nyeri County since innovativeness was shown to play a significant role on the performance of dairy enterprises. Innovativeness together with other attributes of entrepreneurial orientation could be the ingredients that are needed to be among strategies put in place to address the low agricultural production and productivity in Kenya.

7. RECOMMENDATIONS

It is important to note that innovative behavior by the owner/manager of the dairy enterprise would result in improved performance for the dairy enterprise. This is expected to be similar in all other agricultural commodity value chains. Therefore, owner/managers and other stakeholders in dairy and other agricultural value chains should embrace entrepreneurship as this would help in adopting a mindset that encourages and practices innovativeness. This mindset is what is referred to as entrepreneurial orientation in this study. Thus, there is need for policy makers and other stakeholders in the agricultural sector to acknowledge that inadequate entrepreneurial orientation is a challenge affecting production and productivity in agricultural value chains. It is an issue that requires to be addressed with the seriousness it deserves as it involves the human capital that makes decisions on other agricultural inputs combinations

and processes that determine the outputs and outcomes hence the performance of the sector. Entrepreneurial Orientation would be evidenced through observable entrepreneurial tendencies towards innovativeness, proactiveness and risk taking.

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