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Commercialization Strategies on Performance of Dairy Enterprises in Nandi County, Kenya

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Abstract:
The study investigated the shortcomings of dairy entrepreneur's management practices strategies and the effect of these on performance of their dairy enterprises in Nandi County. The overall aim of the research was to investigate the influence of commercialization strategies on performance of dairy enterprises. The study sought to determine how commercialization strategies; that is feeding, breeding, disease control and husbandry, as they are currently practiced contribute to the performance of the various levels of dairy enterprises. This study was motivated Churchill and Lewis grow model. Descriptive research design was used with the target population being 3,213 dairy entrepreneurs of Biribiriet location. Simple random sampling technique was used in selection, 184 respondents forming the study sample. Data was collected using structured questionnaires. Data was subjected to descriptive and inferential analysis to test hypotheses using SPSS version 20 software. Results indicated that: Feeding strategy had (β = 0.040, p = 0.552). Breeding strategy had (β = 0.069, p = 0.000). Disease control strategy had (β = 0.023, p = 0.780) and finally Husbandry strategy had (β= 0.320, p = 0.000). The null hypothesis HO_1 and HO_3 were accepted but HO_2 and HO_4 were rejected. The study concludes that breeding strategy of farmers in Biribiriet location directly influence the performance of their dairy animals; Feeding strategy adopted by farmers in Biribiriet location has no significant impact on the performance of their dairy animals; Disease control strategy has no significant impact on the performance by dairy animals and Husbandry strategy has a significant positive impact on the performance of dairy animals. The researcher recommends that famers should consider establishing effective strategies that will enhance the performance of their animals to increase the quality of their produce and their marketability. The government on the other hand should strive to build the capacity of the farmers with regards to agribusiness improvement.

Keywords: *Commercialization strategy, feeding strategy, husbandry strategy, disease control strategy, breeding strategy, performance*

1. Introduction

The dairy industry in Kenya is dynamic and plays a major important economic role and source of nutrition for many households. It influences the lives of farmers, consumers, hawkers, transporters, employees and processors to various levels. Apart from milk, dairy animals also provide offspring, manure, meat, hides and skins at culling and other intangible benefits such as status symbol and insurance. In countries that are developed, dairy farming is mainly by large-scale enterprises that engage high tech management systems accompanied by high uptake of technology. These enterprises invest high capital unlike in the developing countries where dairy production is mainly by small scale entrepreneurs who are limited in management and technical skills, constrained by capital and have minimal access to information. Due to these constraints in developing countries, the dairy sector has been unable to fully participate and compete in markets both domestic and regional (Wambugu*et al*., 2011).

In order to enhance productivity, Barney (1991) stresses the significance of correct feeding and suitable balanced rations as the foundation of a prosperous dairy set-up. According to Barney, productivity per cow and the budget used for feed in order to produce milk have utmost effect on profitability in a dairy enterprise. The author further argues that for a dairy to be effective, the entrepreneurs and staffs hould continually endeavor to adopt practices that permit the highest output of milk at the most reasonable cost. In addition, the author emphasized that successful dairying depends on production of high amount of milk, getting rid of low producers, managing feed costs, using appropriate replacements and that cow identification and good records make appropriate feeding practices possible. According to the USDA, National Agricultural Statistics Service of 2012, the average milk production per cow in the United States was indicated to have increased to 14,213 lbs from 10,360lbs in 1975. Most of the increase in milk production was accredited to improved nutrition and feeding, all-inclusive management practices and the genetic enhancement of the cow population. However, this study was based in the United States.

According to Oltenacu and Algers(2005) selective breeding for enhanced milk production is the basis of deteriorating longevity and unacceptably high levels of lameness, mastitis and metabolic ailments in the UK dairy herd. The authors argue that different breeding objectives are required as a matter of urgency so as to develop a generation of more robust cows with improved health, welfare, fertility and longevity. Rauw*et al.,* (1989) commented that the essential resolve is "to redefine the breeding objective in a comprehensive perspective", which means "breeding cows with a long cost effective re-productive or productive life at a production level that is reasonable for example production in relation to veterinary costs, without exposing to any signs of distress". Chad Dechow (2016) also notes severe decline in cow fertility over the last five decades while the milk yield trends were on the rise. Oltenacu and Algers (2005) concluded that: "The commercial future of the dairy business is directly related to public approval of its breeding and production practices. It is vital to the dairy trade that well-being challenges be addressed before there is extensive condemnation of breeding and management practices. A different breeding goal intended to improve fitness and tolerance of metabolic stress is crucial to prevent the reduction in the quality of life of dairy cows and in its place, perhaps, boost it." Therefore, in recent developments, breeding goals are economically driven and lifetime net merit index is used to simplify and guide the genetic selection process.

Mapiye*et al.,* (2006) alludes that the insufficient and low value feed resources are the main hindrance to improving yield of dairy animals in sub-Saharan Africa. Lukuyu*et al.,* (2012) compiled a manual on feeding dairy cattle in East Africa and indicated that the basic needs of a dairy cow for maximum production were: good feed and clean water, good health, comfortable environment for example temperature and clean floor, and friendly, loving, gentle and caring handler. The authors argue that to benefit from the cow's full genetic potential, there should be an appropriate nutrition program and activities that meet in entirety all the other needs stated above. Okeyo (2013) argues that farmers in Kenya are yet to attain the desired genetic progress and are still struggling with high calf mortality rates, long calving intervals (>15 months), below standard milk production, mainly forage based diets and inadequate feeding. Dairy Genetics East Africa Project report of 2013 showed that the mean milk production around Nandi (Meteitei) and Bomet (Siongiroi) to be 4.5 – 5 liters per cow per day. Further reports from the East Africa Dairy Development (EADD) Project, currently working with dairy households in Kenya showed that the milk production was at a daily average of 5.4 liters per cow as reported by the annual survey of 2015. Findings by Kirui (2014) indicated that there were increased incidences of tick borne and foot and mouth disease especially during the dry spell. The author further indicated the scarce feed resources including water available for dairy nutrition and reduced milk production. Although findings of an EADD report of 2015 indicated that 100% of farmers practiced tick control measures, there could be challenges related with drug usage, frequency and techniques of application affecting effectiveness.

Dairy enterprise remains a major concern in rural households especially in Nandi County Kenya. Kirui (2014) conducted an assessment of the influence of climate change on dairy productivity using a cross-sectional survey research design. The research indicated that most farmers in Kosirai division, Biribiriet location included owned less than 5 dairy cows that produced a daily average of 5-8 liters per cow during the wet season and a mean of 2-5 liters during the dry season. This production level is considered low and unprofitable despite a potential average daily production of 19-26 liters per cow per day. Techno serve Kenya (2008) further noted great variance in milk production during the rainy and dry season which is characterized by reduction in feed supply and a general deficit in milk production. The low production levels might be caused by low levels of commercialization likely stemming from poor business management skills and poor extension support services. There have been extension programs by non-governmental organizations and government supporting dairy entrepreneurs make informed decisions to increase their dairy enterprise performance. This study therefore sought to determine the influence of commercial strategies on performance of the dairy enterprise amongst dairy entrepreneurs in Biribiriet location, Nandi County of Kenya. To this end, this study sought to establish the commercialization strategies adopted by dairy entrepreneurs' and as a result performance of the dairy enterprise in Biribiriet location, Nandi County so as to suggest solutions to enhance efficiency and improve performance of the industry.

2. Literature Review

2.1. Churchill and Lewis Growth Model

In 1983, Churchill and Lewis advanced a growth model which describes the anticipated evolution stages of a small to medium sized enterprise. This growth model notes that businesses go through five stages of growth for example, conception, survival, success, take-off and maturity. The majority of the micro and small dairy enterprises remain at the conception and survival stages of growth and very little progress to the success status. This raises the question as to what factors contribute to this scenario and what can be done to have many more dairy businesses performing better to ensure success. There are interior and exterior influences on small business formation and endurance. The internal effects are owner/manager intentions, personal characteristics, technical skills, strategic organization capabilities, entrepreneurial management behavior whereas the external effects are macro and micro atmosphere.

Muriuki (2014) who conducted a study on the factors influencing growth in the dairy enterprise in Imenti South, Meru district used this theory. Churchill and Lewis growth model suggests that at the existence phase, the main focus is on winning customers and as such the level of formal structures is minimal and in certain cases non-existent. Furthermore, the organizational structure is level and as such the owner manager assumes a leadership style where there is direct control of those employed in the business.

According to Churchill and Lewis, (1983), as the firm progresses to second phase of survival, the business starts to develop some official systems as the managerial structure develops more stages and hence the owner supervisor begins to give out some tasks to other personnel or agents. The success phase is characterized by the owner director deciding either to retain the business at its existing operational stage or grow the business to upper growth stage. The resolution will be determined by the owner manager's inspiration, prospect recognition and resources. Practical managers are typically used in this phase since the firm would ordinarily have grown to considerable scopes and additional management duties are required. Furthermore, the business has established basic functional structures such as marketing, finance and operations.

In the fourth phase of take-off, the main management concerns challenging the owner-manager comprise determining the speed of growth and funding of the anticipated growth (Churchill and Lewis, 1983). Entrenched in making these resolutions are matters of delegation, where the owner-director would have to consent for even larger delegation to functional leaders to advance organizational effectiveness, availability and access to monetary resources necessary to support the anticipated growth. The final phase is resource maturity. Here, the main worry for owner managers comprises managing the financial achievements resulting from growth and sustain the benefits related with small firms such as flexibility, responsiveness to clients' changing desires and entrepreneurial behavior (Muriuki, 2014). A firm at this phase would typically have sound-established organizational systems.

David Bradley, a business growth strategist who also used this theory indicated that when an entrepreneur is aware of the stage of his/her business, they can identify opportunities, issues and challenges thus able to forecast. Similarly, for dairy enterprises to be considered commercially viable and maximally performing, farmers must strive to progressively improve the organization systems at each of the stages. This includes progressively increasing the resource base such as skilled labor, knowledge, physical assets – land, cows, breed types, feed resources, machinery, equipment), type and quality of data to improve efficiency, delegation powers and supervision as well as market influence. At each stage of growth, farmers should make informed decision that determines the performance of their enterprises. Dairy enterprises that demonstrate this growth pattern develop in scale, level of operations and profitability.

Empirical review is a discussion on research or documentations conducted by other authors on similar or related topics (Dennis, 2013). According to UTAMU, 2014 empirical reviews demonstrate thoroughness in the field being investigated by critically reviewing empirical studies that have been done in the same or related study. This analysis should be critical clearly identifying where the studies were conducted, the sampling issues, the key findings and observed weaknesses in the studies. Lukuyu*et al*., (2012) emphasized that maximum production can be obtained when cattle are kept at optimum conditions; that is, provided with balanced sufficient feed in tandem with their weight and physiological status, clean adequate supply of water, good health, comfortable and clean environment, and have a friendly, loving, gentle and caring handler.

Dairy enterprise is economically viable and is reflected by level of milk produced, value of the cows, cost of production and profitability. Wambugu*et al.,* (2011), conducted an empirical review on productivity drifts and performance of small holder dairy enterprise in Kenya. Findings from the nationwide representative panel household data (2000-2010) and cross-sectional data collected in 2010 in major milk producing areas showed that productivity was higher in high potential areas and increased up the income quintiles suggesting that dairy enterprise was a preserve of the relatively better off households. Gross margin analysis showed that dairying is an economically viable enterprise in the short run with the non-zero grazing system having higher gross margins and therefore, a financial advantage. The author concluded that better commercialization of the dairy sub sector and a proliferation in dairy revenues will come from enhanced technologies that will make prevailing resources more industrious, as well as policies and engagements that will address the seasonal intra-year fluctuations in production which comprise creation of a tactical milk reserve, financing in processing of long life dairy products and investment in infrastructure such as transportation and energy.

Muriuki*et al.,* (2014), who authored a paper on factors influencing growth of dairy enterprise business in Imenti South District of Meru County, reported that poor performance of dairy businesses stemmed from poor business growth caused by certain business-related factors. He established that business management skills influence growth in dairy enterprises and that interaction with extension service providers positively impacted on the earnings of dairy entrepreneurs. Feed is known to contribute the largest portion of the production costs in market oriented dairy farming. As a best practice, dairy cows should have access to adequate, quality and balance feed and water. A FAO report by Muriuki (2011) indicated that the majority of feed resources available for dairy cattle in Kenya were natural forage, cultivated fodder mainly Napier grass and crop by products. The author noted that the low average milk production yields are attributable to poor or underfeeding of cows and poor-quality feed. With good nutrition, dairy cattle are able to maximize their genetic potential attaining maturity weight at 12 months of age and fight off diseases. Kirui (2014) documented an assessment of the influence of climate change on small holder dairy productivity in Kosirai, Kenya and Namayumba, Uganda. The findings indicated that limited dairy herd productivity was attributed to climate variability and changes that led to inadequate feeds and feeding from over reliance on rain fed forages. The study which was conducted in Kosirai division of Kenya, was guided by a cross-sectional study design.

A study conducted by EADD 2015 in Nandi, Kosirai division showed that the naturally occurring pasture and cultivated fodder is the main feed resource base. Natural pastures contribute the largest proportion of the feed on dry matter and metabolizable energy. Other feed resources include, crop residues, green forage and naturally occurring weed collected on farmlands during the wet season. Farmers in the region reported that they collect process and store crop residues that are fed from August all through to October. Cultivated fodder contributes 29% dry matter (DM), 27% metabolizable energy (ME) and

57% crude protein (CP) to the total diet Results indicated that Rhodes grass is the dominant fodder species planted across the region with each household having established and average of about 0.35 hectares. Other cultivated fodder includes, Napier, Desmodium and fodder trees. The number of farmers that have adopted these practices and level of feed production and preservation is not yet commercially viable to meet the annual farm feed requirements for the year, hence the low levels of production still being reported at an annual average of 5.4 litres per cow per day (EADD annual survey report of 2015).

Ideally dairy cows should be breed successfully yearly to produce one calf per cow per year. Any delays in breeding and calving interval affects profitability of the enterprise. Chad (2016) notes that genetic selection should be informed by economic selection indexes, to prevent from the declining fertility rates with selection for milk yield trends. The scientist further shows that cross breeding of select pure breeds results in breed types with positive traits and highbred vigor. In light of recent developments, Chad demonstrates that faster genetic progress can be attained by adoption of technologies such as artificial insemination, use of sexed semen, invitro fertilization, embryo transfer or genomic selection technology. Farmers need to select the right breeds for the appropriate adapted environments.

Mudavadi*et al*., (2001) documented the interventions of the small holder dairy competitiveness program whose objective was to increase milk yield in milk scarce areas, with a focus on western Kenya. The main activity of the project was improvement of the indigenous cattle by usage of grade bulls through resident services, disease control, forage production and support of dairy cooperatives on milk handling, marketing and training. The author indicated that the program focused on three dairy commercialization strategies (Feeding, breeding and disease control) but there was no linkage of the strategies with performance of the enterprise. He further argues that the major constraints facing dairy entrepreneurs and thus affecting their performance were: Insufficiency and poor quality feeds; Inaccessibility of suitable dairy breeds; Extraordinary levels of deaths due to illnesses and parasites; Deprived management/husbandry practices; Disinclination by farmers to allocate labour and management personnel from other farm events to dairy production; Shortage of funds for capital investment in simple infrastructure essential for dairy production; Marketing hitches for milk and milk products (meager milk prices, late payments, lack of market).

Animal health and management is integral to livestock production and any deviation in comfort and wellbeing of animals is best expressed in lowered or reduced productivity. Animal health interventions have moved drastically from on farm curative/treatment to practices that seek to address all possible avenues that may introduce or bring about disease; thus, herd health management as a biosecurity measure. Ideally all farms should seek to have programs that ensure control and prevention of all forms of disease from infectious, non-infectious, and dietary diseases while securing animal welfare. Such a program entails all protocols of disease prevention or control measures with focus on the following: vaccinations regimes, parasite control, development of herd health programs, management practices and timely access to quality inputs and services. Kirui (2014) reported that climate change and variability had resulted in frequent drought and emergence of vector-borne parasites that affect milk production. Mudavadi*et al.,* (2001) also noted that farmers were faced with high levels of mortality due to diseases, poor management and husbandry practices. If farmers do not check their variable costs (veterinary included), they will increase their expenditures thus negatively affecting the enterprise profitability (Wambugu, 2011).

A survey that was conducted in Northeastern Spain revealed the significant effects of both stall convenience and stall maintenance on the production of dairy cows (Bach *et al.,* 2008). The outcomes reported by the mentioned author are comparable to those gathered at Miner Institute. The writer showed a positive association between stall availability specifying a unit change in proportion of stalls-to-cows improved milk production by 7.5 kg (16.5 lbs). For every hour increase in resting period resulted in an increase of 1.7 kg (3.7 lbs) of milk production. Animal well-being has been directly correlated with production. Cows that are kept in a comfortable environment, in good health, provided with adequate quality feed and water, handled in a gentle and friendly manner will produce maximally and have high immunity to resist infection. Husbandry encompasses the routine and impromptu management decisions and farm protocols related to housing, milking, identification, management of structures, disbudding/dehorning, record keeping, weighing, body condition scoring, feeding decisions, breeding decisions, health checks, culling and replacements, identification and management of sick animals amongst others. The review of literature led to the following research hypotheses:

- H_{o1}: Feeding strategy has no effect on performance.
- H_{o2}: Breeding strategy has no effect on performance.
- H_{o3}: Disease control strategy has no effect on performance.
- H_{o4}: Husbandry strategy has no effect on performance.

3. Materials and Methods

The study employed descriptive survey design as it allows collection of data to be done at natural setting without manipulation (Mugenda & Mugenda, 2008). The study targeted dairy entrepreneurs who have been in the practice of dairy farming and have an aim of improving their performance through adoption of commercialization strategies. The target population of the study was 4,017 household dairy farmers. However, the diary entrepreneurs were 3,213 as per the census conducted by the Ministry of Agriculture, Livestock and fisheries, Nandi County, in 2006. Stratified and simple random sampling techniques were used in selection of the study sample. The sample size was determined using the following formula provided by Kothari (2004):

$$n = \frac{Z^2 X\ p.\ q.N}{e^2 (N-1) + Z^2 p.\ q.}$$

Where:
n = Sample size
N = Total population size; 3,213 households
e = margin of error; 5% or 0.05
Z = $\alpha/2$ is the normal reduced variable at 0.05 (Confidence level; 95%), level of significance z is 1.96
p = population reliability (or frequency for a sample of size, n), which is 0.5
p + q = 1
Therefore:

$$n = \frac{1.96^2 X\ 0.85 X\ 0.15 X\ 3213}{0.05^2 X\ (3213-1) + 1.96^2(0.85 X 0.15)}$$

n = 1529.66/8.29 = 184;

The target sample population entailed 184 dairy entrepreneurs in Biribiriet location distributed proportionally across the various levels of enterprises. Questionnaires were administered to respondents. Validity was determined through piloting. Cronbach's alpha was used to test for reliability. Data was then subjected to descriptive and inferential analysis (ANOVA) using SPSS computer. $F = MST/MSE$; $y = a + bx_1 + bx_2 + bx_3 + bx_4$
Where: Y represents performance; X_1 represents feeding strategy, X_2 represents breeding strategy, X_3 represents disease control strategy, X_4 represents husbandry strategy
$y = 6.097 + 0.056X_1 + 0.279X_2 + 0.019X_3 + 0.309X_4$

4. Empirical Results

4.1. Multiple Regression Analysis

Multiple regression analysis is a powerful technique used for predicting the unknown value of a variable from the known value of two or more variables- also called the predictors. In this case, multiple regression analysis will help predict performance from feeding strategy, breeding strategy, disease control strategy and husbandry strategy. It was also used to analyze variations in performance caused by independent variables and whether predictors are significant coefficient of determinants.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.505[a]	.255	.239	3.17148
a. Predictors: (Constant), husbandrystrategy, feedingstrategy, breedingstrategy, diseasecontrolstrategy				

Table 1: Coefficient of determination using SPSS version 20
Source: Research data, 2017

From the table above, the value of R-square is 0.255 which indicates that the model explains 25.5% of performance from the predictor variables (husbandry strategy, feeding strategy, breeding strategy and disease control strategy). The results of one-way ANOVA show that the F-ratio was .640 at 1 degree of freedom which is the variable factor. This represented the effect of size of the regression model and it is insignificant at 95% confidence level.When the p value is >0.05, feeding strategy is positively insignificant.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.150	1	5.150	.640	.425[a]
	Residual	1318.712	164	8.041		
	Total	1323.861	165			
a. Predictors: (Constant), feeding strategy						
b. Dependent Variable: performance						

Table 2: ANOVA results on feeding strategy and performance using SPSS version 20
Source: Research data (2017)

Breeding strategy on performance is shown in Table 3. Result of one-way ANOVA shows p=0.000 and the F- value is 31.254. This implies that breeding strategy has a significant effect on the performance of dairy entrepreneurs.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	211.911	1	211.911	31.254	.000[a]
	Residual	1111.951	164	6.780		
	Total	1323.861	165			
a. Predictors: (Constant), breeding strategy						
b. Dependent Variable: performance						

Table 3: ANOVA results on breeding strategy and performance using SPSS version 20
Research data (2017)

The results of one-way ANOVA show that disease control strategy has F-ratio of 13.804 at 1 degree of freedom which is the variable factor p=0.000. This implies that disease control strategy has a significant effect of the performance of dairy entrepreneurs as shown in Table 4 below;

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	102.779	1	102.779	13.804	.000[a]
	Residual	1221.082	164	7.446		
	Total	1323.861	165			
a. Predictors: (Constant), disease control strategy						
b. Dependent Variable: performance						

Table 4: ANOVA results on disease control strategy and performance using SPSS version 20
Research data (2017)

Husbandry strategy on performance is shown in table 5. Result on one-way ANOVA shows that the F statistic value is 20.245and p value is 0.000. This implies that husbandry strategy has a significant effect of the performance of dairy entrepreneurs.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	127.504	1	127.504	20.245	.000[a]
	Residual	604.618	96	6.298		
	Total	732.122	97			
a. Predictors: (Constant), husbandry strategy						
b. Dependent Variable: performance						

Table 5: ANOVA results on husbandry strategy and performance using SPSS version 20
Source: Research data (2017)

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.097	2.190		2.783	.006
	Feeding strategy	.056	.095	.040	.596	.552
	Breeding strategy	.279	.069	.282	4.047	.000
	Disease control strategy	.019	.070	.023	.280	.780
	Husbandry strategy	.309	.084	.320	3.687	.000
a. Dependent Variable: performance						

Table 6: Coefficient analysis using SPSS version 20
Source: Research data (2017)

The study had proposed the null hypothesis H_{01}: Feeding strategy has no significant effect on performance. The results in table 6 indicate that feeding strategy has no significant effect on performance because p (0.552) > 0.05. Thus, the null hypothesis that feeding strategy has no significant effect on firm performance was accepted. H_{02}: Breeding strategy has no significant effect on performance. The results in Table 6 indicate that breeding strategy has a significant effect on performance because p (0.000) <0.05, thus the null hypothesis is rejected; therefore, breeding strategy has a significant effect on performance. H_{03}: Disease control strategy has no significant effect on performance. Table 6 indicates that disease control strategy has no significant effect on performance because p (0.780) is greater than 0.05.$H_{0:}$ Husbandry strategy has no significant effect on performance. The results in table 6 indicate that husbandry strategy has a significant effect on performance. This is due to the fact that p (0.000) < 0.05. This study agrees with the findings of Lukuyu *et al*., (2012), (Wambugu, 2011) that commercialization strategies affect the performance of dairy farmers.

5. Conclusion

The research established that breeding and husbandry strategies significantly affect performance of a dairy enterprise and hence the need to advance them. There is need for entrepreneurs to improve their cow breeds to pedigree and ensure their management practices provide comfort, sufficient balanced feed, disease free environment and minimal or no stress to their dairy herd. From the findings, entrepreneurs' have significant level of knowledge with regards to the commercialization strategies but are yet to fully adopt them for various reasons, such as costs involved and demoralization by dairy market challenges. However, they need to keep learning and improving as other external factors such as climate change can affect their firms' performance.

6. Recommendations

The research recommends that entrepreneurs should consider establishing effective low-cost strategies that will enhance the performance of their animals to increase the quality of their produce and their marketability. They should invest in hybrid breeds for increased productivity through strategic use of artificial insemination and keep up to date cow identification records so as to increase the value of their dairy cows. Entrepreneurs should keep accurate records and continuously acquire new skills to guide their day to day decisions which are significant in keeping their herd comfortable and stress free and ensure the firm increases profit.

The government and stakeholders should strive to build the capacity of the entrepreneurs with regards to agribusiness improvement. Specific issues that will require action include:(i) Supporting dairy entrepreneurs develop on farm specific feed plans to ensure adequate supply of quality feed and water throughout the year for the dairy herd while reducing the costs of production, (ii) Supporting dairy entrepreneurs develop breeding goals and improve the value of their dairy cows through a progressive genetic selection using readily available but affordable technology such as artificial insemination or in vitro fertilization,(iii) Support dairy entrepreneurs enhance on farm disease control measures. The latter will require support of county government especially with regards to disease surveillance and vaccination protocols, (iv) Training of dairy entrepreneurs to understand effective on farm management practices that reduce cost of production while increasing productivity and how to make informed decisions.

Farms that can afford technology for example, use of management information systems should be supported to access and to understand their applications. A multi-stakeholder approach is required to support farmers address challenges of high cost of inputs, access to capital, non competitive milk pricing and unfavorable government policies that do not protect enterpreneurs. Government and stakeholders should also put more efforts in training dairy enterpreneurs, improve access to markets and supporting farmers access inputs that increase efficiency and effectiveness of their enterprises.The researcher recommends future studies on strategies for improving adoption of best practices by dairy enetrpreneurs. Feasibility studies should also be conducted so as to inform enterprenuers on dairy product marketing options.

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