

Stakeholders' Empowerment and Implementation of Dairy Farming Projects in Muhoroni Sub-County, Kisumu County, Kenya

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Abstract: Kenya's dairy sector is the largest and most developed in Sub-Saharan Africa accounting for 3.5% of national Gross Domestic Product (GDP) and 14% of the total agricultural GDP. However, the industry's growth and competitiveness is constrained by fragmented stakeholders' empowerment programs in dairy farming projects leading to low milk productivity, high calf mortality and eventual projects failure. The purpose of the study was to examine the influence of stakeholders' empowerment on implementation of dairy farming projects in Muhoroni Sub-County. The study adopted descriptive survey design and mixed method approach. Structured questionnaires and interview guide were used to collect data from a sample size of 380 respondents out of a target population of 6432 beneficiaries and implementers of the dairy farming projects. Validity test was done on the instruments and a value of 0.8 obtained using Content Validity Index while reliability involved pretesting of the instruments amongst the 10% of the respondents and a value of 0.79 obtained. Analysis was done through both descriptive statistics of mean and standard deviation and inferential statistics of Correlation and Regression at a significance level of 0.05 with the aid of SPSS version 25 and thematic content analysis of qualitative data for triangulation. The hypothesis was tested at $\alpha=0.05$ level of significance and the result was: H_0 : Stakeholders' Empowerment does not significantly influence implementation of dairy farming projects was rejected since $P=0.000<0.05$. Therefore the study concluded that there is significant influence of Stakeholders' Empowerment on implementation of dairy farming projects. It is recommended that Project managers and policy makers should continuously empower stakeholders to enhance implementation of dairy farming projects and to suggest appropriate policies for strengthening Stakeholders' empowerment for effective implementation of dairy farming projects. Further research should be carried out on how stakeholders' collaboration and stakeholders' participation influence implementation of dairy farming projects.

Keywords: Stakeholders' Empowerment, Implementation of Dairy Farming Projects

I. INTRODUCTION

Agriculture is one of the leading sectors in Kenya employing 70% of the rural population and accounting for 25% of GDP and more specifically, the dairy sector is one of the largest and most developed in Sub-Saharan Africa

accounting for 3.5% of national gross domestic product (GDP) and 14% of the total agricultural GDP in Kenya (FAO, 2016; Gelan and Muriithi, 2015). In United States of America (USA), dairy farming is large scale and highly mechanized with milk marketing mostly done through cooperatives (OECD, 2002). In South Africa dairy milk production capacity has tremendously improved with a quantity of 2,500 liters/cow/year as a result of technological advancement especially in feeding, milking systems, biotechnology and housing compared to 1,800 liters/cow/year in Kenya (FAO, 2016). Many researchers, non-governmental organizations, governments and donors have long held the position that smallholder dairy can be particularly effective for alleviating poverty and increasing food security (Burke, Myers and Jayne, 2015). About 80% of Kenya's total milk production (~ 5 billion litres) is produced by smallholders, and this largely explains the significant number of people who derive income from the sector (Leenstra, 2014).

The industry's growth and competitiveness are constrained by low productivity at the farm level, low milk quality, high calf mortality, sub-standard service provision and input supply, and lack of inclusive business models and this has been attributed to inadequate stakeholders' empowerment in dairy farming projects (Gelan and Muriithi, 2015). Promotion of both horizontal integration involving formation of farmer groups and dairy cooperatives and vertical integration could help address the milk-quality and quantity challenges facing the dairy value chain in Kenya (Roesel and Grace, 2014). Addressing food security at the community level, especially in community food systems, requires the coordinated support and meaningful empowerment of stakeholders.

The purpose of the study was to examine the influence of stakeholders' empowerment on implementation of dairy farming projects in Muhoroni Sub County, Kisumu County, Kenya. The study aimed to contribute valuable knowledge on identifying and entrenching appropriate stakeholders' empowerment mechanisms to help improve implementation of dairy farming projects and to suggest appropriate policies for strengthening implementation of dairy farming projects to ensure quality, on time and within cost delivery of dairy projects. The study also

provides reference information on stakeholders' empowerment for optimal implementation of dairy farming projects for other researchers, policy developers and development agencies. This study thus helps in formulation of appropriate policies on streamlining modern stakeholders' empowerment mechanisms for delivery of successful projects. The study was organized into introduction, literature review, findings and discussion, and conclusion.

II. LITERATURE REVIEW

2.1 Stakeholders' empowerment and implementation of dairy farming projects

Stakeholders' empowerment supports disadvantaged groups to gain power and exert greater authority over those who control access to key resources through capacity-building and training for self-reliance and successful implementation of projects () by (Muniu, Abuya and Kidombo, 2020; Campbell, Carlisle-Cummins, and Feenstra, 2013). Implementation of food security projects is a major challenge not only in Kenya, but also in many developing countries affected by acute food insecurity (Muniu, Abuya and Kidombo, 2020). A study by Späth and Scolobig (2017) evaluated stakeholder empowerment in planning processes of electricity transmission in France and Norway and established that planning regulations can benefit from high levels of stakeholder empowerment involving information, consultation and cooperation, especially in the early phases of the planning process to reduce stakeholder opposition to the project implementation. Further, Rowlinson and Cheung (2008) investigated Stakeholder empowerment in construction projects through in Hong Kong and Australia and found that empowerment of stakeholders ensures attainment of effective project performance and sustainability of supply chain management in the construction projects. Stakeholder empowerment reduces chances of conflict of interest as it structures parties' understandings and take their interest into account for the success of projects from their design, construction and facility management process.

Locally, Onyango and Abuya (2020) sought to establish the association between stakeholder empowerment and implementation of community food security projects in Nyando Basin, Kenya through descriptive cross-sectional survey design and data collected from a sample of 260 respondents out of a target population of 769 using questionnaire while analysis involved descriptive and inferential statistics of correlation, regression and ANOVA. Findings showed a statistically significant relationship between stakeholder empowerment and implementation of sustainable community food security projects. Therefore stakeholder empowerment processes should be prioritized and integrated in community food security policies and projects to promote timely implementation and sustainability, and reduce implementation cost.

III. METHODOLOGY

This study adopted descriptive survey design for collection of both qualitative and quantitative data for results triangulation. The study used a sample size of 380 respondents out of a target population of 6432 beneficiaries and implementers of the dairy farming projects. The sample selection was done through both simple random sampling for questionnaire respondents and purposive sampling for Key Informant interview. Structured Questionnaire and interview guide were used for data collection. The questionnaire and interview guide was pre-tested in 10% unselected respondents drawn from the project before actual data collection and a validity coefficient of 0.80 and reliability coefficient of 0.79 obtained. Descriptive statistics of mean and standard deviation and inferential statistics of correlation and regression at a significance level of 0.05 was done.

A simple regression model took the form:

$$Y = \beta_0 + \beta_1 X_1 + \alpha$$

Where; Y: dependent variable (Implementation of dairy farming projects),

β_0 : regression coefficient/constant/Y-intercept,

β_1 : slopes of the regression equation/Beta Coefficients,

X_1 : predictor variable

α : an error term normally distributed about a mean of 0 and for purpose of computation, the α is assumed to be 0. It captures the effect of all omitted variables or random variation in the dependent variable.

1. H_0 : Stakeholders' Empowerment has no significant influence on implementation of dairy farming projects in Muhoroni Sub County, Kisumu County, Kenya

Performance = f (Stakeholders' Empowerment, random variable)

$$Y = \beta_0 + \beta_1 X_1 + \alpha$$

IV. FINDINGS AND DISCUSSION

Out of the sampled 380 participants, 300 returned dully filled and complete questionnaires which represents 79% return rate. The study sought to establish the extent to which Stakeholders' Empowerment influence implementation of dairy farming projects. Stakeholders' Empowerment in Dairy Farming Projects was measured using four indicators of information sharing, consultation, cooperation, and delegation of authority. The indicators were developed into five Likert items measured on a 5-point Likert scale as 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neutral (N), 4 = Agree (A) and 5 = Strongly Agree (SA). The participants provided their opinion based on their level of agreement with each item. The results were analyzed and presented using frequencies, percentages, mean and standard deviation as shown in Table 4.12.

Table 4.1: Stakeholders' Empowerment

Stakeholders' Empowerment	SD	D	N	A	SA	Mean	STDev
Stakeholders share information on appropriate feeding mechanisms during implementation of dairy farming projects	4	28	36	147	85	3.94	0.950
	(1.4)	(9.2)	(12.1)	(48.9)	(28.4)		
Stakeholders consult on ways of improving milk quality and reducing calving mortality in Dairy farming projects	0	4	36	137	123	4.26	0.724
	(0.0)	(1.4)	(12.1)	(45.4)	(41.1)		
Stakeholders cooperate in developing milk supply chain	0	15	45	133	107	4.11	0.834
	(0.0)	(5.0)	(14.9)	(44.7)	(35.5)		
Delegation of authority is practiced by Dairy farming project stakeholders	2	49	55	102	92	3.77	1.078
	(0.7)	(16.3)	(18.4)	(34.0)	(30.5)		
Composite Mean and Standard Deviation						4.020	0.922

The results in Table 4.12 show that choosing indicators based on Stakeholders' Empowerment for Implementation of Dairy Farming Projects (Mean = 3.94). The mean shows an overall level of agreement with the statement where specifically, majority of the participants 147(48.9%) agreed while 85(28.4%) strongly agreed with the statement that Stakeholders share information on appropriate feeding mechanisms during implementation of dairy farming projects. However, 28(9.2%) of the participants disagreed that Stakeholders share information on appropriate feeding mechanisms during implementation of dairy farming projects with another 4(1.4%) strongly disagreeing while 36(12.1%) were neutral. Thus, 77.3% of the participants cumulatively agreed while 10.6% cumulatively disagreed that Stakeholders share information on appropriate feeding mechanisms during implementation of dairy farming projects. This shows that there is need to train project stakeholders on effective mechanisms of sharing information. This finding was supported by key informant's response. Specifically, the Key Informants said that:

"There is adequate sharing of information involving the correct feeds to be used at every stage of the dairy project, ways of improving calving intervals and measures to ensure quality and quantity milk production is achieved. This has been possible with continuous training on such issues. [Interview: Manager, Send a Cow]"

Similarly, statement that Stakeholders consult on ways of improving milk quality and reducing calving mortality in Dairy farming projects was above average (Mean = 4.26). In this case, majority of the participants 137(45.4%) agreed that Stakeholders consult on ways of improving milk quality and reducing calving mortality in Dairy farming projects while 123(41.1%) strongly agreed. Thus, 86.5% of the participants cumulatively agreed that Stakeholders consult on ways of improving milk quality and reducing calving mortality in Dairy farming projects with only 4(1.4%) disagreeing. This shows that consultation in dairy farming projects is important for effective implementation of dairy farming projects.

The cooperation in Dairy farming activities among stakeholders was also found to influence implementation of dairy farming projects to a high extent (Mean = 4.11). The view is attributable to majority of the participants 133(44.7%) who agreed and 107(35.5%) who strongly agreed that Stakeholders cooperate in developing milk supply chain. Cumulatively, 80.2% of the participants agreed that there was cooperation in Dairy farming activities among stakeholders with another 45(14.9%) being neutral. Only 15(5.0%) of the participants disagreed that there was cooperation in Dairy farming activities among stakeholders. This result underlines the importance of cooperation in Dairy farming activities among stakeholders in the implementation of dairy farming projects. However, the study found that Stakeholders cooperate in developing milk supply chain was adequate. Specifically, Manager, Plan Kenya said that:

Beneficiaries of the dairy farming projects have been imparted with enhanced calving skills, quality milk production mechanisms and feeding programme skills through seminars and barazas. Equally, the dairy farming committees are charged with the responsibility of running the day to day operations including coordination of milk delivery to the cooperative and efficient payment of farmers delivery [Interview: Manager, Plan Kenya].

The results show that delegation of authority is practiced by Dairy farming project stakeholders to a relatively moderate extent compared to other indicators (Mean = 3.77). In this case, although majority of the participants 102(34.0%) agreed that delegation of authority is practiced by Dairy farming project stakeholders while another 92(30.5%) strongly agreed. A significant proportion disagreed 49(16.3%) with 2(0.7%) strongly disagreeing while 55(18.4%) remained neutral. This is attributable to the understanding that delegation of authority is practiced by Dairy farming project stakeholders for successful implementation of dairy farming projects.

Regarding Stakeholders' Empowerment on implementation of dairy farming projects, the results show a composite mean =

4.02 (STDEV = 0.922). This shows that the participants generally agree that Stakeholders’ Empowerment influences implementation of dairy farming projects. Thus, Stakeholders’ Empowerment should be regularly done to ensure enhanced calving skills, quality milk production mechanisms and feeding programme skills through seminars for successful implementation of dairy farming projects.

Similarly, Muniu, Abuya and Kidombo (2020) observed that stakeholder empowerment strategies through capacity-building and training contributes to self-reliance and successful implementation of projects by supporting disadvantaged groups to gain power and exert greater authority over those who control access to key resources. Capacity building through technical training in dairy farming imparts practical skills and create an understanding and sense of responsibility and ownership amongst project stakeholders. Stakeholder empowerment reduces chances of conflict of interest as it structures parties’ understandings and take their interest into account for the success of projects from their design, implementation and project management process.

4.2 Relationship between Stakeholders’ Empowerment and Implementation of Dairy Farming Projects

The researcher sought to establish the existence and nature of relationship between Stakeholders’ Empowerment and Implementation of Dairy Farming Projects. Pearson Correlation analysis was conducted between measure of Stakeholder Empowerment and Implementation of Dairy Farming Projects. Since the indicators of the variables were measured on an ordinal scale (Likert), summated scores for scale of measurement were obtained to provide continuous data necessary for Pearson Correlation. As such, the minimum score on baseline survey scale with five items was = 5 while the maximum score = 25. Similarly, for the Implementation of Dairy Farming Projects scale, the minimum score = 5 while the maximum score = 25 for the five (5) items. Pearson correlation output for the analysis is presented in Table 4.13.

Table 4.2: Relationship between Stakeholders’ Empowerment and Implementation of Dairy Farming Projects

		Stakeholders’ Empowerment	Implementation of Dairy Farming Projects
Stakeholders’	Pearson	1	.440**

Empowerment	Correlation		
	Sig. (2-tailed)		.000
	N	300	300
Implementation of Dairy Farming Projects	Pearson Correlation	.440**	1
	Sig. (2-tailed)	.000	
	N	300	300
**. Correlation is significant at the 0.01 level (2-tailed).			

The correlation results in Table 4.13 show that there is a moderate positive correlation (R = 0.440) between Stakeholders’ Empowerment and Implementation of Dairy Farming Projects which is statistically significant (p =0.000<0.05). This is shows that Stakeholder Empowerment and Implementation of Dairy Farming Projects are statistically moderately and positively correlated such that as Stakeholders’ Empowerment increases, Stakeholder Empowerment and Implementation of Dairy Farming Projects also improve to a moderate extent. Similarly, Onyango and Abuya (2020) showed a statistically significant relationship between stakeholders’ empowerment and implementation of sustainable community food security projects. Therefore stakeholders’ empowerment processes should be prioritized and integrated in community food security policies and projects to promote timely implementation and reduce implementation cost.

4.3 Influence of Stakeholders’ Empowerment on Implementation of Dairy Farming Projects

Having established the existence and nature of relationship between Stakeholders’ Empowerment and Implementation of Dairy Farming Projects, the researcher sought to determine the linear effect of Stakeholders’ Empowerment on Implementation of Dairy Farming Projects. This was achieved through regression analysis with Stakeholders’ Empowerment as the predictor variable and Implementation of Dairy Farming Projects as the outcome variable. As with correlation, the measure of the variables was obtained as summated scores on the measuring scales to obtain continuous data with Stakeholders’ Empowerment having a minimum score = 5 and maximum score 25 while Implementation of Dairy Farming Projects had a minimum score = 5 and maximum score = 25. The regression output is presented in Table 4.14.

Table 4.3: Influence of Stakeholders’ Empowerment on Implementation of Dairy Farming Projects

Model	R	R Square	Adjusted R Square		Std. Error of the Estimate	
Summary	.440 ^a	.193	.188		4.273	
ANOVA		Sum of Squares	df	Mean Square	F	Sig.
Model	Regression	608.740	1	608.740	33.343	.000 ^b
	Residual	2537.728	298	18.257		
	Total	3146.468	299			

Coefficients		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
Model	(Constant)	2.570	2.255		1.139	.026
	Stakeholders' Empowerment	.800	.138	.440	5.774	.000
a. Dependent Variable: Implementation of Dairy Farming Projects						
b. Predictors: (Constant), Stakeholders' Empowerment						

From the output in Table 4.14, the model summary gives a R^2 value = 0.193 with $p = 0.000$. This shows that Stakeholders' Empowerment accounts for 19.3% of Implementation of Dairy Farming Projects. Moreover, the model was found to be a good fit for the data and variables with $F(1, 298) = 33.343$ ($p = 0.000 < 0.05$). The coefficient of the constant term ($\beta = 2.570$, $p = 0.024$) and the coefficient of Stakeholders' Empowerment ($\beta = 0.8$, $p = 0.000 < 0.05$) were found to be statistically significant. Thus, Stakeholders' Empowerment improves Implementation of Dairy Farming Projects by 0.8 for every unit change in Stakeholders' Empowerment.

$$Y = \beta_0 + \beta_3 X_3 + \varepsilon$$

Where; β_0 is coefficient of the constant term, β_3 is coefficient of the predictor (Stakeholders' Empowerment), X_3 is the predictor (Stakeholders' Empowerment) and ε is the error term. Thus replacing the coefficients the equation becomes:

$$Y = 2.57 + 0.8X_3$$

4.4 Test for Hypothesis

Hypothesis was stated in the null and tested as:

H_0 : There is no significant influence between Stakeholders' Empowerment and Implementation of Dairy Farming Projects.

The null hypothesis was tested at 95% confidence level as $H_0: \beta_0 = \beta_3 = 0$ ($p = 0.05$). The null hypothesis was to be accepted when $p > 0.05$ (There is no significant difference) and rejected when $p \leq 0.05$ (There is significant difference) between the coefficient of the constant term and the coefficient of the predictor. Since the results showed that $\beta_0 \neq \beta_3 \neq 0$ ($p = 0.000 < 0.05$), we reject the null hypothesis and accept the alternative. Thus, there is a significant influence of Stakeholders' Empowerment on Implementation of Dairy Farming Projects.

V. CONCLUSION

The study concludes that Stakeholder Empowerment significantly influences Implementation of Dairy Farming Projects. To large extent Stakeholders share information on appropriate feeding mechanisms during implementation of dairy farming projects; Stakeholders consult on ways of improving milk quality and reducing calving mortality in Dairy farming projects and; Stakeholders cooperate in developing milk supply chain. However, delegation of

authority is practiced by Dairy farming project stakeholders was relatively low compared to other indicators. Overall, Stakeholders' Empowerment significantly influences Implementation of Dairy Farming Projects. The study recommends that NGOs and government agency should develop implementation plan to systematically include Stakeholders' Empowerment for enhanced implementation of dairy farming projects. The researcher recommends that scholars should conduct research using other practices of Stakeholders' Collaboration, Participation, and Evaluation not covered in the study to assess their influence on Implementation of Dairy Farming Projects.

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