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Livestock Restocking Interventions Impact on Food Security among Households in Loima Sub-County, Turkana County, Kenya

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ABSTRACT

This study investigated the effects of livestock restocking interventions on food security among households in Loima Sub-County, Turkana County, Kenya. “The study employed a mixed-methods approach targeting 196 pastoral households that had received livestock restocking interventions in the form of cattle, goats, and sheep, which were strongly perceived as vital for replenishing productive resources, promoting household self-sufficiency, improving food security, and reducing prolonged reliance on food assistance. Data collection utilized questionnaires and interview schedules, with descriptive and inferential statistics used for quantitative analysis and thematic triangulation for qualitative data. Results indicate a strong positive correlation between livestock restocking interventions and food security outcomes ($r = 0.587, p < 0.01$). Multiple linear regression analysis revealed that livestock restocking intervention significantly predicted food security ($\beta = 0.211, p = 0.001$), with a one-unit increase in livestock restocking associated with a 0.128 unit increase in food security. Research findings showed that livestock restocking helped households rebuild productive assets and reduce dependency on food aid through increased milk supply and income generation. The study concluded that livestock restocking interventions significantly enhance food security in Loima Sub County through asset rebuilding, productivity enhancement, market integration, and risk mitigation pathways. The research recommended continued investment in livestock restocking programs, with packages aligned to household needs and environmental conditions.

INTRODUCTION

Food security remains a critical challenge for pastoral communities in arid and semi-arid lands, particularly in regions like Turkana County where environmental variation, market constraints, and inadequate support systems persist. The vulnerability of pastoral households to recurrent droughts, livestock diseases, and limited market access has necessitated targeted interventions to strengthen their resilience and livelihood systems. Livestock restocking interventions have emerged as key strategies for addressing food insecurity in these fragile ecosystems.

The complexity of pastoralism in Turkana County is evidenced by the recurring challenges faced by communities in Loima Sub County. Between 2021 and 2023, prolonged drought conditions across similar ASAL regions led to significant livestock mortality, with losses exceeding 170,000 animals valued at over USD 46 million in Kajiado County alone (State Department of Livestock, 2023). These experiences underscore the urgent need for comprehensive livestock restocking interventions that can enhance household resilience and food security outcomes.

Current approaches to measuring livestock contributions to food security often oversimplify the complex relationships between pastoral interventions and household welfare. Traditional metrics such as binary

ownership measures or Tropical Livestock Units fail to capture the diverse roles that different livestock species play in income generation, cultural practices, and resilience building. This study addresses these limitations by examining how livestock restocking interventions influence food security through multiple pathways.

The research is grounded in Sen’s Entitlement Theory (1981), which provides a comprehensive framework for understanding food security as an access issue rather than merely an availability problem. This theoretical foundation emphasizes how pastoral households secure food through production, purchase, and transfers, making it particularly relevant for analyzing livestock restocking interventions.

Research Objective

To establish the influence of livestock restocking intervention on food security among households in Loima Sub County, Turkana County, Kenya.

MATERIALS AND METHODS

Research Design

This study employs a mixed-methods research design to examine the research problem comprehensively. A mixed-methods approach combines both quantitative and qualitative research features in data collection, analysis, and presentation to provide a more complete

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understanding of the research phenomenon (Kinyua, 2015). The quantitative component allows for systematic data collection and statistical analysis to measure relationships between variables, while the qualitative component provides deeper insights into participants' experiences and perspectives.

Study Participants

The study participants comprised 196 pastoral households in Loima Sub-County that had received livestock restocking intervention benefits. Using established sampling protocols, the researcher determined the required sample size to achieve statistical significance and representativeness. Participants were recruited through systematic sampling to ensure representative coverage of the target population.

Materials/Instruments

The study utilized both quantitative and qualitative data collection instruments. For the quantitative component, a structured questionnaire was developed and adapted from established sources. For the qualitative component,

an interview schedule was developed to guide in-depth interviews with key stakeholders and participants. Both instruments were reviewed by experts and pilot-tested to ensure validity and reliability.

Ethical Considerations

The research was conducted in accordance with established ethical standards. Participation was voluntary, with comprehensive informed consent processes. Privacy and confidentiality were maintained throughout, with participant anonymity protected and research data secured appropriately.

RESULTS AND DISCUSSION

Perceived Extent of Restocking Intervention's Effect on Food Security

Table 1 shows the perceived extent of restocking intervention's effect on food security among households in Loima Sub County. The data reveals varying perceptions of how livestock restocking interventions influence household food security outcomes.

The data indicates a mixed but generally positive

Table 1: Perceived Influence of Restocking Intervention on Food Security

Response Category	Frequency	Percentage (%)
To a very great extent	15	8.9
To a great extent	40	23.7
To a moderate extent	70	41.4
To a little extent	30	17.8
To no extent	14	8.3
Total	169	100.0

perception of the influence of livestock restocking interventions on food security. The largest proportion of respondents, 41.4% (n=70), reported that restocking affects food security "To a moderate extent." This suggests that while the intervention is beneficial, its full transformative potential may not be consistently realized or perceived across the community. A significant combined percentage of 32.6% (n=55) believes the influence is substantial, with 23.7% (n=40) indicating "To a great extent" and 8.9% (n=15) reporting "To a very great extent." This highlights that for a substantial portion of the population, restocking plays a vital role in enhancing their food security.

Conversely, a notable 26.1% (n=44) perceive the effect as limited, with 17.8% (n=30) indicating "To a little extent" and 8.3% (n=14) reporting "To no extent." This group may represent beneficiaries for whom the intervention did not yield expected results, perhaps due to factors like subsequent animal loss, inadequate numbers of animals, or other unresolved food insecurity drivers. The moderate perception among the majority suggests that while restocking provides benefits, additional complementary interventions may be needed to maximize its impact on food security outcomes.

Research indicates that livestock restocking programs can significantly improve household food security by restoring productive assets and providing direct access to nutritious foods such as milk and meat (Aklilu & Wekesa, 2002). However, the effectiveness of such interventions often depends on factors including the number and quality of animals provided, post-distribution support services, and environmental conditions that affect animal survival and productivity (Heffernan *et al.*, 2004).

Types of Livestock in Restocking Programs

Goats emerged as the most common livestock type (90.4%, n=75), reflecting their central role in the pastoral economy due to their adaptability to arid conditions and rapid reproduction. Cattle followed at 66.3% (n=55), indicating their substantial presence as wealth assets.

Key Informant Insights on Livestock Distribution

Respondent 1 indicated: "This varies depending on the funding partner, but typically households receive 5 to 15 goats or sheep. In some cases, cattle are included for specific households."

Respondent 2 cited: "On average, each household receives 4-5 small stock (goats or sheep), with a 3:1

Table 2: Types of Livestock Owned and Given During Restocking

Livestock Type	Frequency	Percentage (%)
Cattle	55	66.3
Donkey	24	28.9
Goat	75	90.4
Sheep	27	32.5
Poultry	8	9.6
Camel	12	14.5

ratio favoring female animals due to their reproductive and production potential. The number and frequency of distribution depend on available funding and needs assessment. Small stock is preferred for their adaptability and rapid reproduction.”

Number of Animals Owned and Received During Restocking

Specific data for camel restocking indicates that a total of 7 residents received camels: 3 residents received 1 camel each, and 4 residents received 2 camels each. This specific, albeit limited, data point shows that camel restocking occurred, contrasting with general statements

that residents were not given cattle. The majority of livestock value falls within the KSh 5,000-10,000 range (65.0%), followed by KSh 10,001-20,000 (15.38%) and KSh 20,000-50,000 (12.6%). This indicates that most transactions or typical livestock asset values are in the mid-to-lower range, with smaller proportions exceeding KSh 50,001 (5.6%).

Cost of Livestock Insurance

Livestock insurance plays a crucial role in mitigating risks associated with animal loss, thereby safeguarding pastoralists’ assets and enhancing their resilience and food security.

Table 3: Cost of Livestock Insurance

Type	<100	101-500	501-1,000	1,001-5,000	5,001-10,000	>10,001
Cattle	0	0	0	86(50.9%)	41(24.3%)	42(24.8%)
Donkey	0	0	0	61(36.1%)	78(46.2%)	61(36.1%)
Goats	0	0	81(47.9%)	77(45.6%)	7(4.1%)	4(2.4%)
Sheep	0	0	41(24.3%)	104(61.5%)	16(9.5%)	8(4.7%)
Poultry	1(0.6%)	168(99.4%)	0	0	0	0

The data on livestock insurance costs reveals varied pricing structures across different animal types, reflecting their economic value and risk profiles. Cattle insurance primarily falls within higher cost brackets, with 50.9% in the KSh 1,001-5,000 range, 24.3% in KSh 5,001-10,000, and 24.8% exceeding KSh 10,001. This indicates that insuring cattle is a significant financial commitment, commensurate with their high value as assets.

For donkeys, insurance costs are distributed across several tiers, with notable concentrations in KSh 1,001-5,000 (36.1%), KSh 5,001-10,000 (46.2%), and >KSh 10,001 (36.1%). Goat insurance is more concentrated in middle-income brackets, with 47.9% in KSh 501-1,000 and 45.6% in KSh 1,001-5,000. Sheep insurance largely falls within the KSh 1,001-5,000 range (61.5%). Poultry insurance is exceptionally low, with almost all (99.4%) costing KSh 101-500.

Influence of Livestock Restocking on Food Security

The livestock restocking intervention is consistently perceived as a crucial mechanism for rebuilding livelihoods and improving food security. Respondents highlight direct benefits such as increased access to nutritious food sources and enhanced economic resilience.

Key Informant Perspectives

Respondent 1: “The restocking program has helped households rebuild their livelihoods. Milk availability has improved, and some families are able to sell animals to meet food and education needs.”

Respondent 2: “Livestock restocking has improved access to milk and meat, reduced reliance on food aid, and enabled some households to re-enter the livestock economy. It has restored household dignity, improved income levels, and strengthened livelihood security, especially following drought shocks.”

Deputy veterinary officer: “Livestock restocking has restored the livelihood asset that Loima pastoralists depend on for food and income thereby improving their household food security and income.”

Inferential Statistics

Correlation Analysis

Pearson product-moment correlation analysis revealed a moderate positive and significant correlation between livestock restocking intervention and food security ($r = 0.587, p < 0.01$).

Table 4: Correlation Between Livestock Restocking and Food Security

Variables	Pearson Correlation	Significance (2-tailed)	N
Livestock Restocking - Food Security	0.587**	0.000	169

**Correlation is significant at the 0.01 level (2-tailed)

Multiple Linear Regression Analysis

Multiple linear regression analysis was conducted with food security as the dependent variable and livestock

restocking as one of the predictor variables alongside other pastoral economy interventions.

The overall model explained 80.8% of the variance in

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
1	0.899	0.808	0.797	0.171

food security ($R^2 = 0.808$), with an adjusted R^2 of 79.7%. The ANOVA results indicated that the overall regression model was statistically significant ($F(1,167) = 73.429$, $p < 0.001$).

The regression analysis revealed that livestock restocking intervention had a significant positive influence on food security ($\beta = 0.211$, $t = 3.438$, $p = 0.001$).

Table 6: ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	8.591	1	2.148	73.429	0.000
Residual	2.048	167	0.029		
Total	10.639	168			

Table 7: Regression Coefficients for Livestock Restocking

Variable	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
Livestock Restocking	0.128	0.037	0.211	3.438	0.001

Hypothesis Testing

There is no significant influence of livestock restocking intervention on food security in Loima Sub-County.

The null hypothesis was rejected based on the regression results ($p = 0.001 < 0.05$). The analysis concluded that livestock restocking intervention has a significant influence on food security in Loima Sub-County, Kenya.

The findings demonstrate that livestock restocking interventions have a moderate but significant positive influence on food security among pastoral households in Loima Sub-County. The descriptive statistics reveal that while the majority of respondents acknowledge the benefits of restocking programs, the perceived impact varies considerably across households. The predominance of goats in restocking programs aligns with their ecological suitability and rapid reproductive capacity in arid environments.

The inferential statistics provide robust evidence of the positive relationship between livestock restocking and food security. The moderate correlation ($r = 0.587$) suggests that while restocking is beneficial, its impact is influenced by other factors within the pastoral system. The regression analysis confirms that restocking significantly predicts food security outcomes, contributing meaningfully to household resilience.

CONCLUSION

The level of livestock restocking intervention in Loima Sub-County is high. The assessment revealed a generally positive community perception of livestock restocking interventions. The majority of respondents acknowledged that restocking contributed moderately to significantly toward improving household food security. While some beneficiaries experienced limited benefits due to animal loss or inadequate numbers, the intervention was predominantly favorable. Goats were the dominant livestock type, reflecting their importance in pastoral livelihoods. The participatory selection process prioritized vulnerable groups, including widows, orphans, people with disabilities, and households affected by drought or livestock loss. Restocking packages were tailored based on funding availability and community needs, establishing restocking as a reliable factor in household resilience and recovery. Livestock restocking interventions represent an effective strategy for enhancing food security among pastoral households in Loima Sub-County. The study provides empirical evidence supporting the continuation and expansion of such programs, particularly those focusing on climatically appropriate species like goats. The significant statistical relationships observed underscore the importance of asset rebuilding in pastoral development strategies.

Recommendations

Based on the findings, it is recommended that programs on pastoral development in Loima Sub-County should continue and strategically expand livestock restocking interventions. Packages should align with household needs and environmental conditions, with effective monitoring mechanisms to ensure sustainable impact. Priority should be given to vulnerable households, and post-distribution support services should be strengthened to maximize intervention effectiveness.

REFERENCES

Aklilu, Y., & Wekesa, F. W. (2002). *Improving food security*

in pastoral areas of Ethiopia: The contribution of livestock restocking projects. SOS Sahel International (UK) and Pastoral and Environmental Network in the Horn of Africa (PENHA).

Kinyua, J. (2015). *Influence of mixed research methods on quality of research work in private universities in Kenya*. (Unpublished master's thesis). University of Nairobi, Kenya.

Sen, A. (1981). *Poverty and famines: An essay on entitlement and deprivation*. Oxford University Press.

State Department for Livestock Development. (2023). *National livestock drought assessment report*. Government of Kenya.