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Identification and ranking of household preferences for different coping strategies to cattle rustling in Baringo north sub-county, Kenya

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Abstract

Cattle rustling remains a persistent livelihood challenge in Kenya's Arid and Semi-Arid Lands (ASALs), where recurrent livestock losses undermine household resilience and food security. Despite the widespread use of coping strategies, evidence on household preferences for these strategies remains limited. This sought to identify and rank household preferences for coping strategies to cattle rustling in Baringo North Sub-County, Kenya. A cross-sectional research design was adopted, and data were collected from 385 small-scale pastoralist households selected through multistage sampling. Structured questionnaires and face-to-face interviews were used to obtain primary data. Best-Worst Scaling (BWS) was employed to identify and rank household preferences for different coping strategies. The findings revealed significant variation in household preferences. Livelihood diversification emerged as the most preferred coping strategy, followed by migration to safer areas and participation in community-based security initiatives. These strategies were perceived as offering greater potential for sustaining livelihoods and reducing exposure to cattle rustling. However, reliance on food aid and asset depletion through distress livestock sales were the least preferred strategies, reflecting their limited long-term effectiveness and negative implications for household welfare. The study concluded that pastoralist households favour proactive and resilience-building coping mechanisms over short-term survival strategies. Strengthening livelihood diversification opportunities, improving community-based security initiatives, and enhancing institutional support for sustainable livelihood options are therefore critical for increasing household resilience in cattle rustling-prone areas. The findings provide evidence to inform county and national policies aimed at improving pastoral livelihoods and strengthening resilience among households affected by cattle rustling in Kenya's ASALs.

Keywords: Best-worst scaling, cattle rustling, coping strategies, pastoralists, Kenya

Introduction

Cattle rustling remains one of the most persistent forms of livestock-related insecurity affecting pastoral and agro-pastoral communities across the world^[16]. Beyond the loss of livestock, cattle rustling disrupts household livelihoods, undermines food security, limits access to education and healthcare, and contributes to prolonged cycles of poverty and displacement. As livestock constitute the principal source of income, wealth, and social status among pastoral communities, households have developed diverse coping strategies to reduce their vulnerability to cattle raids. Identifying and ranking household preferences for these coping strategies is essential for understanding community resilience, informing policy interventions, and strengthening local security and livelihood systems (Intergovernmental Authority on Development^[19]).

Globally, livestock-related conflicts have increasingly attracted the attention of governments and development agencies because of their implications for sustainable development and rural livelihoods. The Food and Agriculture Organization^[16] reported that pastoral households worldwide increasingly adopt combinations of livelihood diversification, community-based security initiatives,

migration, livestock insurance, and social support networks to cope with recurrent livestock theft and violent conflicts. Similarly, the United Nations Development Programme^[37] observed that strengthening household resilience through locally preferred coping strategies significantly reduces vulnerability to conflict-induced shocks while improving food security and economic recovery in fragile pastoral regions.

In Europe, although cattle rustling occurs on a much smaller scale than in pastoral regions, studies on rural crime have demonstrated the importance of household adaptation strategies in protecting livestock assets. According to the European Union Agency for Law Enforcement Cooperation^[14], livestock theft has increasingly been addressed through collaborative surveillance, technological monitoring, and community policing initiatives. Likewise,^[35] studying livestock theft prevention in the United Kingdom, found that farmers preferred electronic livestock identification, neighbourhood watch schemes, and strengthened police-community collaboration as effective strategies for minimizing livestock losses and improving rural security. In Asia, livestock-dependent communities exposed to recurrent conflicts and environmental shocks have adopted

multiple coping mechanisms to safeguard their livelihoods. In India, ^[22] reported that pastoral households preferred livelihood diversification, livestock mobility, cooperative grazing arrangements, and participation in community security groups to reduce losses associated with livestock theft and communal conflicts. Similarly, in Tajikistan, ^[12] found that households prioritized social networks, livestock insurance, and diversification into non-livestock income-generating activities as effective coping strategies for minimizing livelihood risks associated with insecurity.

In the Middle East and North Africa, conflict-affected pastoral communities have increasingly relied on household resilience strategies to sustain livestock production. The International Organization for Migration ^[21] reported that pastoral households in conflict-prone regions adopted temporary migration, diversification of livelihoods, communal resource management, and strengthened local peace-building initiatives to cope with livestock-related insecurity. Likewise, the International Fund for Agricultural Development ^[20] observed that household preferences for coping strategies varied according to livestock ownership, household income, and the severity of insecurity, emphasizing the need for context-specific interventions that reflect community priorities.

In Africa, cattle rustling continues to threaten pastoral livelihoods across the Horn of Africa and the Sahel. The Intergovernmental Authority on Development ^[19] reported that livestock theft and pastoral conflicts have intensified because of climate variability, competition over natural resources, the proliferation of illicit firearms, and weak security governance. The report noted that affected households increasingly rely on livestock diversification, temporary migration, community policing, reciprocal social support, and alternative livelihood activities to cope with recurring insecurity. Similarly, the ^[3] emphasized that strengthening locally preferred coping mechanisms is fundamental for enhancing household resilience and promoting sustainable peace in pastoral communities.

In East Africa, household responses to cattle rustling have received growing research attention because of the persistent insecurity experienced by pastoral communities. In Uganda, ^[5] found that households in Karamoja primarily preferred community peace committees, livelihood diversification, migration to safer grazing areas, and cooperation with security agencies to reduce vulnerability to cattle raids. In Ethiopia, ^[17] reported that pastoral households adopted livestock mobility, herd diversification, reciprocal community support, and participation in local conflict-resolution institutions as key strategies for coping with recurrent livestock theft and armed conflicts. These studies demonstrate that household preferences for coping strategies differ across pastoral settings depending on local socio-economic and security conditions.

In Kenya, cattle rustling remains a major security and development challenge, particularly within the arid and semi-arid lands (ASALs). The National Drought Management Authority ^[30] reported that recurrent livestock theft, competition over grazing resources, prolonged droughts, and inter-community conflicts continue to undermine household livelihoods in pastoral counties, including Baringo. Similarly, the Kenya National Bureau of Statistics ^[24] noted that insecurity associated with cattle rustling contributes to

household displacement, declining livestock productivity, food insecurity, and increased poverty levels in affected counties. A related study by ^[34] further indicated that households increasingly combine livelihood diversification, informal early-warning systems, participation in community policing initiatives, and migration as adaptive responses to persistent cattle rustling in northern Kenya.

Within Baringo County, cattle rustling remains one of the leading causes of insecurity and socio-economic disruption. The National Steering Committee on Peacebuilding and Conflict Management ^[31] reported that Baringo North Sub-County continues to experience recurrent livestock raids that have resulted in loss of lives, destruction of property, displacement of households, school closures, and disruption of economic activities. Although households have developed various coping strategies, including relocation, participation in peace initiatives, diversification of livelihoods, and collaboration with security agencies, little empirical evidence exists regarding the relative preferences households assign to these strategies. Existing studies have largely concentrated on the causes, drivers, and security implications of cattle rustling, with limited attention given to systematically identifying and ranking household preferences for different coping strategies. Therefore, the current study sought to identify and rank household preferences for different coping strategies to cattle rustling in Baringo North Sub-County, Kenya, to generate evidence that can inform household resilience programmes, peacebuilding interventions, and policy formulation.

2. Materials and Methods

2.1 Description of the Study Area

Baringo, one of Kenya's largest counties with an area of 11,075 km², has a tiny population in comparison to other counties (Figure 1). Baringo South, Mogotio, Eldama Ravine, Baringo Central, Baringo North, Tiaty West, and Tiaty East are the seven sub-counties that make up the County. Baringo County is located in the Rift Valley Region of the Republic of Kenya and borders the counties of Turkana, Samburu, Laikipia, Nakuru, and Kericho to the north, Kericho, and Uasin Gishu to the south, Elgeyo-Marakwet, and West Pokot to the west, and Laikipia to the east. It is situated between latitudes 0 10' South and 1 40' East and between longitudes 35' and 36' East.

At the southern end of the county, the Equator crosses. 11,075 square kilometers make up Baringo, of which 221 square kilometers are surface water from Lake Baringo, Lake Bogoria, and Lake Kamnarok. Baringo County's economy is predominantly driven by pastoralism and agriculture, serving as the main sources of livelihood for its residents. Marigat Sub-County has a sizable horticultural farming industry, with crop cultivation concentrated in Eldama Ravine and the highlands of Baringo North Sub-County.

Although food crops like maize and beans are also grown in the highlands, the main economic activity is the production of cash crops like coffee and cotton. The main economic activity of Kabarnet and surrounding towns is the trade of agricultural products, primarily maize and beans. Cattle, goats, sheep, and camels are the most common animals raised in the lowlands, where it is the primary economic activity. Tiaty, Baringo North, and Baringo South each have significant livestock markets.

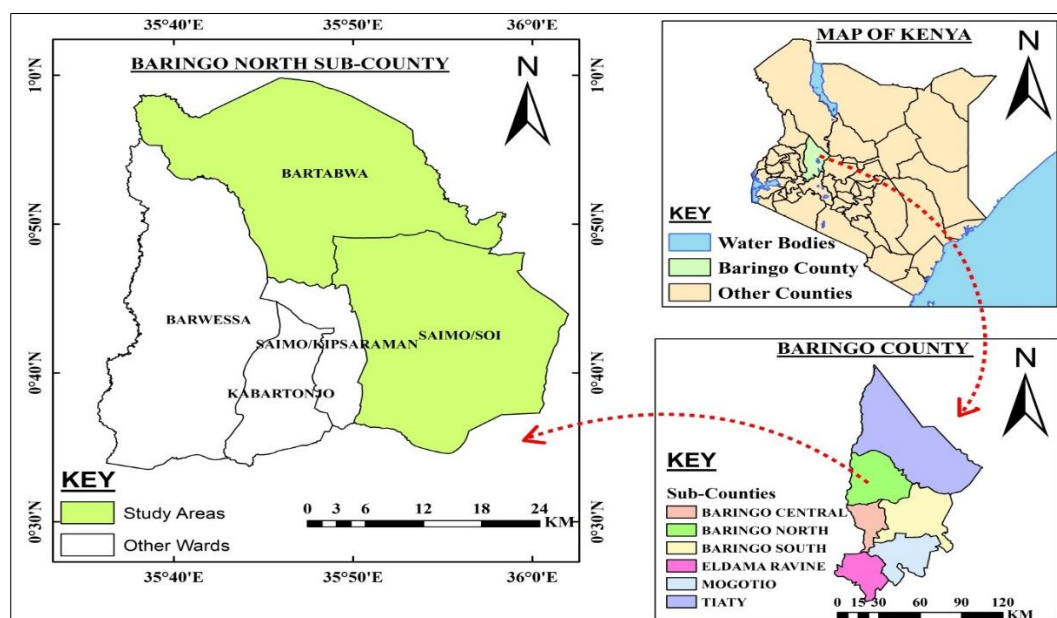


Fig 1: A map of Bartabwa and Saimo Soi wards

2.2 Research Design

A cross-sectional survey design was adopted to collect data from households at a single point in time. The design was appropriate because it facilitates the collection of data from a large population within a relatively short period and enables the assessment of the prevalence of the variables under investigation [27].

2.3 Sample Procedure and Sample Size

A multistage sampling procedure was employed. Baringo County and Baringo North Sub-County were purposively selected due to the high prevalence of cattle rustling and the predominance of pastoral livelihoods. Two wards, Bartabwa and Saimo Soi, were further purposively selected because they are among the most affected by recurrent cattle rustling. Households were then selected through proportionate stratified random sampling based on sub-locations. The sample size was determined using [27] formula for estimating population proportions:

$$n = \frac{Z^2 \cdot p \cdot q}{e^2}$$

where $Z=1.96$, $p=0.5$, $q=0.5$, and $e=0.05$, yielding a sample size of 385 households. The sample was proportionately allocated between Bartabwa (166 households) and Saimo Soi (219 households) based on the 2019 Kenya Population and Housing Census [24].

Table 1: Target Population and Sample Size

Sub-county	Ward	Target population	Proportionate	Sample
Baringo North	Bartabwa	14,611	0.43	166
Baringo North	Saimo Soi	19,238	0.57	219
Total		33,849	1	385

Source; Kenya National Bureau of Statistics, 2019 census

2.4 Data Collection and Analysis

Data were collected using a structured questionnaire administered to sampled households. Information gathered included household socio-economic characteristics, livestock ownership, experiences with cattle rustling, and coping strategies. Completed questionnaires were checked for completeness and consistency before data entry. Data were double-entered, validated, cleaned, and analysed using SPSS and STATA.

2.5 Analytical framework

Household preferences for coping strategies were assessed using Best-Worst Scaling (BWS). Six coping strategies identified from previous literature were evaluated: reliance on social networks, income diversification, expenditure economisation (consumption smoothing), migration, asset depletion, and reliance on food aid [6, 11, 13, 23, 26, 38]. A balanced incomplete block design comprising six choice sets with three strategies per set was used. In each choice set, respondents identified the most preferred ("best") and least preferred ("worst") coping strategy. Preference scores were computed using the counting approach:

$$BW_score_i = \frac{(B_i - w_i)}{N_i}$$

where B_i is the number of times strategy i was selected as the best, w_i is the number of times it was selected as the worst, and N_i is the number of times the strategy appeared across all choice sets. Strategies with higher Best-Worst scores were interpreted as the most preferred household coping strategies.

Results

3.1 Identification and ranking of household preferences for different coping strategies to cattle rustling in Baringo North Sub-County

The study sought to identify and ranking of household preferences for different coping strategies to cattle rustling in Baringo North Sub-County.

3.1.1 Experiencing cattle rustling in the past 5 years

The findings in Table 2 indicate that a majority of respondents (67%) reported having experienced cattle rustling in the past five years, while 33% indicated that they had not experienced it. This suggests that cattle rustling remains a significant security challenge in the study area, affecting more than half of the population sampled.

Table 2: Experiencing cattle rustling in the past 5 years\

Status	Responses	
	Frequency	Percentage (%)
No	127	33.0
Yes	258	67.0
Totals	385	100.00

3.1.2 Frequency of cattle rustling and loss of cattle

The findings in Table 3 shows that cattle rustling occurs frequently, with respondents indicating an average of 4.5 incidents, suggesting that the problem is recurrent rather than occasional. In addition, an average of 30 livestock is lost, indicating a substantial economic impact on affected households.

Table 3: Frequency of cattle rustling and loss of cattle

Statement	Mean
How many times	4.5
Number of livestock were lost	30.0

3.1.3 Coping strategies on cattle rustling

The most common coping strategies adopted by households were diversifying into crop farming (85.7%), migrating to safer areas (82.6%), and joining community-based security groups (61.8%) as presented in Table 4. Other strategies

included relying on food aid (48.6%), selling livestock before attacks (47.3%), relying on social networks (29.9%), and consumption smoothing (30.4%), while building secure livestock enclosures was rarely practiced (0.3%).

Table 4: Coping strategies on cattle rustling

Coping strategy	Responses		Percent of Cases
	N	Percent (%)	
Selling livestock before rustlers attack			
Diversifying into crop farming	182	12.2	47.3
Migrating to safer areas	318	21.4	82.6
Joining community-based security groups	330	22.2	85.7
Relying on food aid	238	16.0	61.8
Relying on social networks of friends and relatives	187	12.6	48.6
Consumption smoothing	115	7.7	29.9
Building secure enclosures for livestock	117	7.9	30.4
	1	0.1	0.3
Total	1488	100.0	386.5

3.1.4 Preference of coping strategies on cattle rustling

The findings in Table 5 shows that diversification emerged as the most preferred coping strategy against cattle rustling, receiving the highest "best" rankings across multiple comparisons (75.6-82.3%). Consumption smoothing was also highly preferred (66.0-72.0%), while migration received mixed preference (45.8-63.0%). Asset depletion and reliance on social networks were generally less preferred, whereas reliance on food aid was consistently the least preferred coping strategy.

Table 5: Preference of coping strategies on cattle rustling

Strategy		Coping strategy											
		Asset deletion		Consumption smoothing		Diversification		Migration		Reliance on food aid		Reliance on social networks	
		n	%	N	%	n	%	n	%	N	%	n	%
Strategy 1	Best					263	75.6	113	37			9	7.7
	Worst					85	24.4	192	63			108	92.3
	Total					348	100	305	100			117	100
Strategy 2	Best	153	43.0	157	72.0					75	38.3		
	Worst	203	57.0	61	28.0					121	61.7		
	Total	356	100	218	100					196	100		
Strategy 3	Best	38	19.5			288	82.3			59	26.2		
	Worst	157	80.5			62	17.7			166	73.8		
	Total	195	100			350	100			225	100		
Strategy 4	Best			214	66.0			141	45.8			30	21.7
	Worst			110	34.0			167	54.2			108	78.3
	Total			324	100			308	100			138	100
Strategy 5	Best			76	40.0	271	79.2			38	15.8		
	Worst			112	59.6	71	20.8			202	84.2		
	Total			188	100	342	100			240	100		
Strategy 6	Best	136	42.1					126	63.0			123	49.8
	Worst	187	57.9					74	37.0			124	50.2
	Total	323	100					200	100			247	100

Therefore, the coping strategy preference pattern shows that livelihood diversification and migration are the most preferred and perceived as most effective responses to cattle rustling, while asset depletion, reliance on social networks, and food aid are generally viewed as less effective or last-

resort strategies. This reflects a shift from traditional communal coping mechanisms toward more individualized and adaptive economic strategies in response to persistent insecurity.

3.1.4.1 Statistical analysis using Best-Worst Scaling (BWS) on identification and ranking of household preferences for different coping strategies to cattle rustling

From Table 6, Best-Worst Scaling (BWS) analysis showed that diversification was the most preferred household coping strategy across the choice sets (BW scores = 0.5-0.6), followed by consumption smoothing (BW scores = 0.3-0.4).

Migration received mixed but generally low preference (BW scores = -0.1 to 0.3), while asset depletion, reliance on food aid, and reliance on social networks were consistently the least preferred coping strategies, recording predominantly negative BW scores (-0.8 to -0.004). These findings suggest that households primarily favour livelihood diversification and consumption adjustment over distress-based coping mechanisms.

Table 6: Statistical analysis using Best-Worst Scaling (BWS)

Strategy		Coping strategy											
		Asset deletion		Consumption smoothing		Diversification		Migration		Reliance on food aid		Reliance on social networks	
		n	BW score	N	BW score	N	BW score	N	BW score	N	BW score	N	BW score
Strategy 1	Best					263	0.5	113	-0.3			9	-0.8
	Worst					85		192				108	
	Total					348		305				117	
Strategy 2	Best	153	-0.1	157	0.4					75	-0.2		
	Worst	203		61						121			
	Total	356		218						196			
Strategy 3	Best	38	-0.6			288	0.6			59	-0.5		
	Worst	157				62				166			
	Total	195				350				225			
Strategy 4	Best			214	0.3			141	-0.1			30	-0.6
	Worst			110				167				108	
	Total			324				308				138	
Strategy 5	Best			76	-0.2	271	0.6			38	-0.7		
	Worst			112		71				202			
	Total			188		342				240			
Strategy 6	Best	136	-0.2					126	0.3			123	-0.004
	Worst	187						74				124	
	Total	323						200				247	

Discussion

3.1 Identification and ranking of household preferences for different coping strategies to cattle rustling in Baringo North Sub-County

The study sought to identify and ranking of household preferences for different coping strategies to cattle rustling in Baringo North Sub-County.

3.1.1 Experiencing cattle rustling in the past 5 years

The high proportion of respondents who reported experiencing cattle rustling demonstrated that livestock theft continues to be a persistent and widespread problem despite numerous security interventions implemented by government agencies and local communities. This finding suggests that cattle rustling remains deeply entrenched within pastoral and agro-pastoral regions, posing serious threats to livelihoods, security, and community stability. The findings are consistent with those of ^[32], who found that cattle rustling remains a persistent crisis in Tiati Sub-County, Kenya, despite various intervention measures. Their study established that livestock raids continue to affect a substantial proportion of households due to factors such as resource scarcity, historical conflicts, and governance challenges. Similarly, ^[9] observed that cattle rustling remains a critical socio-economic and security problem in West Pokot County, where most households continue to experience livestock losses, insecurity, and disrupted livelihoods.

The results further support the findings of ^[4], who reported that livestock rustling has evolved from a traditional cultural

practice into an organized criminal enterprise affecting numerous households in western Kenya. According to the study, the widespread nature of livestock theft has increased the vulnerability of rural communities and contributed to persistent economic and social hardships. Likewise, ^[33] found that cattle rustling continues to occur in several regions of Kenya despite the deployment of specialized security agencies, indicating that the problem remains prevalent among affected communities.

Additionally, the findings agree with ^[18], who established that cattle rustling continues to negatively affect pastoralist communities in Laikipia County through recurrent livestock losses and insecurity. Their study revealed that a considerable number of households had directly experienced cattle raids, resulting in reduced household income and diminished socio-economic development. Similarly, ^[1] noted that cattle rustling remains a common occurrence among pastoral communities in Turkana County, where recurring raids continue to disrupt livelihoods and community well-being.

3.1.2 Frequency of cattle rustling and loss of cattle

The findings showed that cattle rustling occurred frequently, with most respondents indicating that the problem was recurrent rather than occasional. These findings are consistent with recent studies that report increasing frequency and commercialization of cattle rustling in pastoral regions of Kenya. ^[29] observed that despite intensified security interventions in the Karamoja Cluster, livestock theft incidents and the number of animals stolen have continued to

rise. Similarly, ^[32] found that cattle rustling in Tiati Sub-County remains a persistent problem driven by resource competition, weak governance, and insecurity, resulting in substantial livestock losses among pastoral households. Further, the National Crime Research Centre reported that contemporary livestock rustling in Kenya is characterized by frequent raids, increased numbers of animals stolen, and significant economic losses to affected communities ^[10]. ^[4] also noted that modern livestock rustling has become a commercialized criminal enterprise that undermines household livelihoods and deepens poverty among affected families.

3.1.3 Coping strategies on cattle rustling

The findings indicated that households affected by cattle rustling employ a combination of mobility, livelihood diversification, and social protection strategies to minimize losses and sustain their livelihoods. This finding is consistent with evidence that insecurity and livestock theft often force pastoral households to relocate temporarily or permanently to safer areas ^[39]. Diversification into crop farming was also widely adopted, suggesting that households seek alternative income and food sources to reduce dependence on livestock, which is highly vulnerable to rustling. Similar observations have been reported among Kenyan pastoral and agropastoral communities, where livelihood diversification has become a critical adaptation mechanism against both climatic and non-climatic shocks, including insecurity ^(25, 28, 39). The relatively high proportion of households joining community-based security groups demonstrated the importance of collective action in enhancing local security and protecting livelihoods. Community participation in security initiatives has been identified as an effective approach for addressing cattle rustling in pastoral areas where formal security mechanisms are often inadequate ^(29, 32). Additionally, nearly half of the households reported selling livestock before attacks and relied on food aid indicating the use of both asset-based and humanitarian coping mechanisms. These strategies are commonly adopted when households anticipate losses or face food shortages resulting from insecurity and displacement ^[39].

Reliance on friends, relatives and consumption smoothing further highlighted the role of social networks and household-level adjustments in managing shocks. However, a few of households invested in secure livestock enclosures, suggesting limited financial capacity or confidence in structural protection measures. This finding implied that households prefer flexible and immediate coping strategies over long-term infrastructural investments. These findings concur with ^[39], who found that migration, income diversification, asset sales, and reliance on social support were among the most common coping strategies adopted by agropastoral households facing shocks in Kenya's ASAL regions. Similarly, ^[8] reported that pastoralists increasingly rely on mobility and livelihood diversification to enhance resilience against multiple livelihood threats, including insecurity and resource-related conflicts.

3.1.4 Preference of coping strategies on cattle rustling

The households affected by cattle rustling employed a range of coping strategies, with clear variations in preference and perceived effectiveness across the different strategies.

Diversification of livelihoods emerged as the most strongly preferred coping strategy. It was consistently rated as the "best" strategy by a large proportion of respondents. This suggested that households increasingly view diversification such as engaging in alternative income-generating activities alongside livestock keeping as the most reliable way of reducing vulnerability to cattle rustling shocks.

Migration to safer areas was also highly preferred in several cases. This indicated that relocation is considered an effective short-term response when insecurity intensifies, although it may not be a sustainable long-term solution due to social and economic disruption.

Consumption smoothing strategies (such as adjusting household consumption patterns to cope with losses) showed mixed but generally moderate preference levels. Asset-related strategies (including asset deletion or disposal) were generally less preferred and more often rated as ineffective, with a majority of respondents indicating them as "worst" in Strategy 2 and Strategy 3. This implies that selling or disposing of assets is largely seen as a distress response rather than a sustainable coping mechanism.

Reliance on food aid and social networks showed relatively weaker and inconsistent preference levels. Food aid was in some cases moderately preferred in Strategy 2, but in most instances, it was more frequently rated as a "worst" strategy. Similarly, reliance on social networks was generally low in preference, with high proportions of respondents rating it as the least effective coping mechanism (Strategy 1), suggesting weakened or overstretched community support systems in the study area.

These findings are consistent with findings from ^[15] which emphasized that livelihood diversification is a key resilience strategy among pastoral communities in East Africa, significantly reducing vulnerability to livestock-related shocks. Similarly, ^[40] found that pastoral households increasingly rely on diversified income sources rather than distress sales of assets, which are associated with long-term impoverishment. Additionally, ^[36] reported that while mobility (migration) remains an important traditional coping mechanism, its effectiveness is declining due to resource conflicts and socio-economic disruptions, echoing the limited sustainability observed in this study.

3.1.4.1 Statistical analysis using Best-Worst Scaling (BWS) on identification and ranking of household preferences for different coping strategies to cattle rustling

The Best-Worst Scaling (BWS) results indicated that households strongly preferred livelihood diversification as the most desirable coping strategy against cattle rustling. The consistently high positive BW scores suggest that households perceive diversification as a sustainable and proactive approach that reduces dependence on livestock, which is highly vulnerable to theft. This finding is consistent with recent studies showing that pastoral and agropastoral households increasingly diversify income sources to strengthen resilience against both climatic and conflict-related shocks. For example, ^[39] found that income diversification was among the most common coping mechanisms adopted by households facing livestock theft, conflict, and other shocks in Kenya's ASAL regions. Similarly, ^[7] reported that diversification has become a

central strategy among Kenyan pastoralists as they navigate increasing socio-economic and environmental risks.

Consumption smoothing emerged as the second most preferred strategy. The positive BW scores indicate that households value mechanisms such as reducing expenditures, utilizing savings, and adjusting consumption patterns to maintain welfare during periods of insecurity. Similar findings were reported by ^[39], who observed that reducing food expenditure and other household consumption costs was a common response to livelihood shocks among agropastoral households in Kenya.

The findings further reveal that migration occupied an intermediate position among coping strategies. Although migration can provide access to alternative income opportunities and safer environments, households generally view it as disruptive and therefore less desirable. This observation aligns with ^[7], who found that pastoral mobility is increasingly constrained by social, economic, and environmental challenges, making migration a strategy adopted primarily under severe stress conditions rather than a preferred long-term solution.

Asset depletion received predominantly negative BW scores, indicating that households consider the sale of livestock and productive assets a last-resort response. This preference reflects concerns about the long-term erosion of household wealth and livelihood security. Similar evidence was reported by ^[39], where asset sales were adopted mainly when households faced severe shocks and lacked alternative coping mechanisms.

The least preferred strategy was reliance on food aid, which consistently recorded strongly negative BW scores. This suggests that households perceive food aid as a temporary measure that does not address underlying livelihood vulnerabilities and may foster dependency. Previous studies have similarly shown that pastoral households generally prefer self-reliance and livelihood-based interventions over prolonged dependence on external assistance ^(2, 18).

Finally, social networks were ranked relatively low despite their recognized role in pastoral societies. The weak and negative BW scores suggest that while kinship and community support remain important, they may be insufficient to cope with the scale and frequency of cattle-rustling-related losses. This finding may reflect the increasing strain on traditional support systems under persistent insecurity and economic pressures. Similar observations have been reported among pastoral communities experiencing recurrent shocks, where social support alone was inadequate to ensure long-term resilience ^[39].

Conclusion

The households affected by cattle rustling employed a wide range of coping strategies, but with clear and consistent preference patterns.

Livelihood diversification emerged as the most preferred and highly ranked coping strategy, indicating that households prioritize income and livelihood expansion as a sustainable response to insecurity shocks.

Migration to safer areas was also highly preferred, particularly in the short term, reflecting its use as an immediate survival strategy during heightened insecurity.

Consumption smoothing was moderately preferred, showing

that households adjust consumption patterns to manage shocks, while reliance on food aid and social networks was less preferred and often considered a last-resort option.

Asset depletion strategies were the least preferred due to their long-term negative effects on household resilience. The findings showed a shift from traditional communal coping mechanisms toward more individual, adaptive, and economically oriented strategies.

Recommendations

1. The government and relevant security agencies should strengthen security operations in Baringo North Sub-County to reduce cattle rustling incidents, as insecurity is the primary driver of coping strategy adoption and food insecurity.
2. Development partners and county government should promote and support livelihood diversification programs, including agro-pastoral integration, small enterprise development, and value addition initiatives to enhance household resilience.
3. Policy makers should strengthen community-based security systems and early warning mechanisms, since community structures and perceived effectiveness strongly influence coping decisions.
4. Financial inclusion programs such as microcredit and savings groups should be expanded to enable households to invest in sustainable coping strategies rather than distress strategies like asset depletion.

Conflict of Interest

“The author(s) declare(s) that there is no conflict of interest.” There was no role of the funding sponsors in the design of the study; in the collection, analyses or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

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