



Classification of Livestock Farming Vulnerability Threats and Indigenous Adaptation Strategies in Less Developed Countries: Case study of Babadjou Sub-division, West Region of Cameroon

Roland Bawe Ndzi^{1*}, Clarkson Mvo Wanie¹, Titus Fondo Ambebe²

¹Department of Geography and Planning, Faculty of Arts, The University of Bamenda, Cameroon.

²Department of Forest and Wildlife Technology, College of Technology, The University of Bamenda, Cameroon.

***Corresponding Author**
Roland Bawe Ndzi

Department of Geography and Planning, Faculty of Arts, The University of Bamenda, Cameroon.

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Abstract: While livestock farming plays a major role in food security, livelihoods and rural economies especially in the developing world, environmental, social-economic, cultural and political factors increasingly threaten livestock farming in these areas. This study classifies livestock vulnerability threats and indigenous adaptation strategies to cope with such threats in Babadjou Sub-division. To realize this aim, data was obtained from both secondary and primary sources. Secondary data were obtained from published and unpublished documents consulted from online, libraries of Universities and specialized institutions found in Babadjou. Primary data were gotten through the administration of 398 copies of questionnaire, Focus Group Discussions, personal interviews, direct and indirect field observations. Data were descriptively processed with the help of Excel version 2013, meanwhile content analysis was used for qualitative data. Results were qualitatively and presented in the form of tables, charts, photograph and percentages. The study identified six types of livestock reared in Babadjou Sub-division including cattle, goats, sheep, pigs, guinea pigs and fowls. The study further established that livestock rearing in this community is exposed to several vulnerability threats that span through environmental (water scarcity-38.2% and pastures scarcity-33.6%) market (price volatile-42%, consumers preference-15.6% and price of feed-49.7%), production (theft-32.8% and adequate breeding skills-31.2%) and health (diseases and parasites attacks) threats. As a consequence, livestock farmers have resorted to the practiced of transhumance (30.3%), animal de-ticking, keeping of dogs (28.5%), feeding of animals with salt (38.2%), application of red oil mixed with kerosene on livestock (23.7%), shooting of hawks with rubber gun (25.0%), animal feed mixed with pepper (15.6%) and animal feed mixed with salt (28.7%) as indigenous adaptation strategies to the vulnerability threats of livestock rearing in Babadjou Sub-division. The study concludes that the indigenous strategies play an important role in livestock rearing in Babadjou Sub-division and recommends that both conventional and indigenous strategies should be integrated in livestock rearing to enhance livestock sustainability.

Keywords: Livestock, vulnerability threats, indigenous adaptation strategies, Babadjou, Cameroon.

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1. Introduction

Livestock farming is a rapidly growing subsector of agriculture, accounting for approximately 40% of global agricultural Gross Domestic Product-GDP (FAO, 2011). It is more advanced in the developed world due to high advancement in technology, than in the less developed world where rearing depends mostly on traditional methods (Tambi and Anyah, 2019).

Less-developed nations are home to an estimated 500 million small-scale farms (including livestock farmers), who provide sustenance for approximately two billion people (Ahmed and Givens, 2025). In Africa, livestock farming in many rural communities is mostly carried out for the provision of meat, milk, and eggs. Animals such as cattle, goats, sheep, and poultry are integral to the socio-economic fabric of these societies. This livestock farming serves as a form of financial security, functioning as savings and a source of income that households can draw upon during adversity periods (FAO, 2012). The livestock farming provides a buffer against climatic shocks and other crises, enabling households to cope with adverse events without plunging into destitution. Beyond economic functions, livestock contribute to social status and cultural practices, often playing central roles in ceremonies and traditional events (Abiliba, 2024).

In sub-Saharan Africa, the agro-pastoral sector is the lifeblood of most of the economies with about 85% of the indigenous populations relying on agriculture including livestock farming for their survival (Azibo and Kimengsi, 2015). Here, more than half of the population keeps livestock, and about one-third are poor livestock keepers who depend heavily on their animals for survival (FAO, 2012). Thus, livestock are indispensable to food security and economic stability across the continent (De Leeuw *et al.*, 1995 as cited in Tambi and Anyah, 2019).

Cameroon being African in miniature carries out a variety of livestock farming that spans through poultry, pig farming, small ruminant production, apiculture, heliculture and cattle (Gam *et al.*, 2018; World Bank, 2010). These types of livestock contribute significantly to Cameroon's economy, food security, and rural livelihood of dependent population (World Bank, 2011). This sector has been vulnerable to several shocks and is determined by several interrelated factors, including exposure to climatic events, sensitivity of livestock systems, and the adaptive capacity of communities. The vulnerability threats to livestock farming span through socio-economic, cultural, political and environmental dimensions, and vary from one place to the other (Tambi and Anyah, 2019; Gam *et al.*, 2018).

In the West Region of Cameroon especially in Babadjou Sub-division, the vulnerability of livestock farming to socio-economic, cultural, political and environmental threats has directly affected households' incomes, limiting their ability to afford other necessities including food, education, and healthcare especially during food crops growing seasons (Council Development Plan-CDP, 2021). This vulnerability of livestock farming has not been static as it varies from one place to another. Therefore, it is often imperative to identify the various vulnerability threats per geographical area as well as the coping strategies of livestock keepers so as to permit stakeholders' interventions (Tambi and Anyah, 2019).

Despite the prevalence of socio-economic, cultural, political and environmental threats to livestock farming that directly affect households' incomes in Babadjou Sub-division, there is the lack of

scientific evidence on the type of livestock species reared, categories of vulnerability threats faced and various adaptation strategies put in place by the herdsmen to cope with such threats in Babadjou Sub-division. This research makes a contribution to science on the subject by answering the following research questions: (1) what species of livestock are reared in Babadjou Sub-division? (2) what are the livestock vulnerability threats and how can they be classified? (3) how have the herdsmen adapted to the prevalence of livestock farming vulnerability threats in the area? (iv) what recommendations can be suggested to improve livestock farming in Babadjou?

Livestock farming vulnerability threats and indigenous adaptation strategies have been the focus of scientific research all over the world, especially in the less developed countries. However, most of the studies have focused on livestock farming, adaptation strategies and climate change. For instance, Ahmed and Givens (2025) researched on farmers' climate change adaptation strategies and the role of environmental awareness and education in Africa. Khan *et al.* (2024) focused on rural households' livelihood adaptation strategies in the face of climate change in Pakistan. Ochir *et al.* (2024) made an assessment of nomadic pastoralists' livelihood vulnerabilities to the changing climate in the third pole region of Mongolia. Rankoanna (2024) examined indigenous adaptation practices for small-scale farmers for climate policy while Abiliba (2024) dwelt on the vulnerability of livestock to climate change. On their part, Faisal *et al.* (2021) researched on perception, vulnerability and adaptation strategies for mitigating climate change effects amongst livestock herders in Punjab (Pakistan) and Karimi *et al.* (2017) focused on vulnerability and adaptation of livestock producers to climate variability and change. In the context of Cameroon, the work of Aibo and Kimengsi (2015) built an indigenous agro-pastoral adaptation framework to climate change in the Northwest Region of Cameroon. From the existing literature, we clearly observe the dearth of scientific publication on classification of livestock farming vulnerability and adaptation strategies as most studies on the subject have focused on climate change impact. Secondly, there are inadequate studies in Cameroon in general and Babadjou in the West Region of Cameroon in particular. By focusing on livestock farming vulnerability threats and indigenous adaptation strategies in Babadjou Sub-division in the West Region of Cameroon, this present study makes a significant scientific contribution to knowledge by filling in empirical evidence, knowledge and spatial gaps that currently exist. This is achieved by the study focusing on the following specific objectives: (1) identify the species of livestock reared in Babadjou Sub-division? (2) determine the livestock vulnerability threats and their classification (3) investigate the adaptation strategies of herdsmen to the prevalence of livestock farming vulnerability threats in the area? (iv) suggest actionable recommendations to improve livestock farming in Babadjou Sub-division.

2. Materials and Methods

2.1. The Study area

The study area is Babadjou Sub-division, located in the West region of Cameroon and more precisely in the Bamboutos Division (Figure 1). It is spotted between Latitude 5°37' and 5°46' North of the Equator and between Longitude 10°4' and 10°10' East of the Greenwich Meridian. It is crossed by the national road N°6 Bafoussam-Bamenda from South to North. Babadjou was created by decree No. 93/321 of 25/11/1993, following the splitting of the

Mbouda Sub-division into two administrative units: the Mbouda and the Babadjou Sub-divisions. It shares territorial limits to the west with the South-West Region (Bamock village), to the north with the North-West region (Menka and Santa), to the east by the Bamessingué and to the south with the Balatchi and Bagang.

Babadjou covers a total superficial area of about 161km² with a total population estimated at 44,198 inhabitants based on a 2.6% growth rate in Cameroon (CDP-Council Development Plan-Babadjou 2012).



Fig. 1. Location of Babadjou in Bamboutos Division, West Region of Cameroon

Source: Geo Database of Cameroon (2022)

2.2 Research Methods

The data used for the realization of this study was obtained from both primary and secondary sources. As concerns the primary sources, a simple random sampling technique was used to select the 392 households through a designed semi-structured questionnaire, the granting of qualitative interviews with herdsman and Focus Group Discussions. As concerns the questionnaire, the 392 copies were administered to household heads through face-to-face method. Two focus group discussions were equally conducted with herdsman consisted of 8 individuals each. Key informant interviews with relevant authorities were also conducted. Finally, direct field observations were carried out to complement data obtained from administered questionnaire, interviews and focus group discussions. Secondary source data exploited from journal articles downloaded from online search, specialized institutions such as the Municipal Councils and the Delegation of Livestock and Fisheries was also used to complement statistical data obtained from administered questionnaire. Descriptive analysis was employed for quantitative survey data to obtained statistical tables representing population opinion about livestock vulnerability threats and indigenous adaptation strategies. Meanwhile, qualitative data obtained from interviews, focus group discussions and field observations were sorted out manually and were summarized according to the various research objectives.

3. Results and Discussion

3.1. Typology of livestock farming in Babadjou Sub-division

The various livestock species reared by the local population in Babadjou Sub-division are many and varied (Table 1).

Table 1: Domesticated species of livestock in Babadjou Sub-division

Species	Common names	Scientific names	Local names
Ruminants	Cattle	<i>Bos taurus</i>	Co-o
	Goats	<i>Capra hircus</i>	Membi
	Sheep	<i>Ovis aries</i>	Ktkoo
	Guinea pigs	<i>Cavia porcellus</i>	-
Others	Pigs	<i>Sus domesticus</i>	Membi
	Fowls	<i>galloanseræ</i>	Margep

Source: Fieldwork, February 2025

The various animal species (Table 1) reared by the local population in the study area include cattle, goats, sheep, pigs, guinea pigs and fowls.

3.2 Livestock vulnerability threats in Babadjou Sub-division

The rearing of these animal species have been exposed to a myriad of vulnerability threats (Table 2).

Table 2: Livestock vulnerability threats in Babadjou Sub-division

Livestock vulnerability threats	Scaling (%)				
	SA	A	D	SD	U
Environmental vulnerability threats on livestock farming					
Water scarcity	38.2	30.7	15.7	9.3	6.1
Pastures scarcity	26.5	33.6	14.9	12.4	12.5
Market vulnerability threats					
Price fluctuations	42.0	32.2	13.4	10.1	2.3
Consumers' preference	15.6	14.4	33.0	32.5	4.5
Prices increase of feed	49.7	24.1	7.3	9.1	9.8
Production vulnerability threats					
Theft	32.8	23.4	18.1	12.8	12.9
Inadequate breeding skills and training	31.2	30.7	10.4	11.6	16.1
Health vulnerability threats					
Diseases attacks	36.6	31.4	11.3	9.8	10.9
Parasite	30.4	34.5	14.4	7.6	13.1
Others; Picking of chicks by hawks	31.3	20.4	16.8	6.8	24.7

Source: Fieldwork, February 2025

It can be seen from Table 2 that the livestock vulnerability threats are many and varied, and cut across environmental, market and production dimensions in the study area. For clarity, these livestock vulnerability threats identified in the study area were further discussed on the following points below:

3.2.1. Environmental vulnerability threats to livestock farming in Babadjou

As concerns environmental vulnerability threats, two were identified in the study area, including water shortage and pasture shortage. Cattle rearers along the slopes of mount Bamboutos complained that they are often exposed to problem of water scarcity for cattle consumption. During the dry seasons, some fast flowing water bodies along the slopes of mount Bamboutos often dry off causing water shortages for cattle consumption. To this, cattle rearers often head their cattle right down to the boundaries of Maloki village for cows to drink water during the dry seasons. Further field testimonies from cattle rearers, revealed that cattle are often taken to river Maloki twice on a day, which is very stressful. That is, in the morning and the afternoons hours.

Besides water scarcity, above 50% of the population (Table 2), including cattle, goats and sheep rearers also opined that they are often exposed to pasture shortages, especially during the dry seasons. This is because dry seasons in the study area are often characterized with intensive sunshine, couple with the high exposure of the slopes of mount Bamboutos to intensive sun, thus causing grass (pastures) that cattle, goats, sheep feed on to dry off. According to the rearers, the situation is often worst between January and March where most of the pastures most have dry off.

3.2.2. Market vulnerability threats to livestock

Analysis of the results for market vulnerability threats to livestock showed that livestock farmers are exposed to vulnerability threats such as price fluctuations, consumers' preference as well as increasing prices of animal feed (Table 2). Among these vulnerability threats, increasing prices of animal feed was identified the most outstanding with 49.7% of the studied population. This was closely followed by price fluctuation of livestock in the market with 42.0% of the population; meanwhile consumer's preference was ranked the least with 15.6% of the population. This outstanding proportion of the population who indicated that they are facing the problem of increasing price of animal feed are mainly those involved in pig and poultry farming that do not depend on locally made feed and when the price of feed increased, they have no choice than to buy. Results from focus group discussions especially those involved in pig and poultry farming indicated that the price of animal feed has not been stable in the study area a decade over. This price of feed is often expensive especially during the growing seasons of food crops like corn and soya beans used for the production of animal feed. This is often between the months of March to July, which are always characterized with the shortages of corn and soya beans in the markets.

Couple with the fact that feed is mostly imported into the study area, the blockage of the road at Dschang cliff due to the landslide

that occurred on the 5th of December 2024 caused some of the poultry farmers to almost close down due to a persistent increase on the price of animal feed in the study area. Prices of animal feed were increased based on the fact that the cost of transportation from Douala was expensive thus causing feed dealers to also increase the price of feed in order to cover the cost of transport.

Apart from the persistent price of feed, the results from Table 2 showed that price fluctuations of reared livestock was identified by above 70% of the population as one of the market vulnerability threats to livestock farming in the study area. This was made known by members of the focus groups carried out in Kombou and Balepo villages during the study. Reports from these group discussions revealed that the prices of reared livestock often drop drastically during low demand. This often happen mostly after the festive period (a period often characterized with many celebrations, including funerals, festivals and marriages which the demand for livestock such as goats, pigs, fowls, and sheep is high) that often extends from November to March. This fall in price always led to a fall in the incomes of livestock farmers. Some of the livestock farmers during personal interviews complained that at times it is very difficult to recover even the capital invested in the business especially from April to August where the prices of livestock are not always favorable, thus causing some rearers to abandoned the business especially poultry farmers and only restart from September.

3.2.3. Production vulnerability threats to livestock farming

Analysis of the results for production vulnerability threats showed that livestock farmers are exposed to challenges like animal theft (32.8%) and inadequate breeding skills (31.2%) and trainings in the study area. As for theft, livestock farmers explained that they are often exposed to goat, cattle, sheep, and fowls theft. According to field testimonies, when goats and sheep are Allowed during the dry seasons to feed freely when most food crops have already been harvested, thieves always take advantage to steal them. Livestock farmers further revealed that the growth of roadside sales of roasted meat has increase the rate of livestock theft in the study area. On the other hand, livestock farmers have inadequate skills to tackle health related issues (Table 2) that often attack animals due to limited trainings. Majority of livestock farmers were observed depending mostly on indigenous skills in handling animals' transmissible parasites such as ticks, fleas, lice and mites that feed on animals' blood as well as internal parasites like tapeworms and roundworms that affects the digestive issues and nutrient deficiencies in cattle, goats and sheep.

3.2.4. Health vulnerability threats to livestock farming in Babadjou

With regards to health vulnerability threats to livestock farming, two major health vulnerability threats in the study area, including diseases and parasites attack on livestock such as cattle, poultry, pig, goats and sheep (Table 2). Table 3 further presents the different types of diseases, causing organisms, illnesses/symptoms and animals affected in the study area.

Table 3: Common diseases that attack livestock in the study area

Animals affected	Types of diseases	Causing organism	Symptoms/Illness
Cattle	Anthrax	Bacterial	Fever and convulsions
	Foot and mouth diseases	Virus	Blisters on the mouth, feet and tongue, accompanied with fever
	Cattle plague		Fever and diarrhea
	Nagana	Protozoan parasite	Anemia and weakness in cattle
Poultry	Avian influenza	Virus	Fever, diarrhea and cough
	Coccidiosis	Parasite	Diarrhea and weight loss
	Newcastle disease	Para-myxo virus	Loss of appetite, coughing, gasping diarrhea
Pig	African swine fever	Virus	Decreased appetite, fever, difficulty in breathing
Goats and sheep	Helminthiasis	Parasite	Diarrhea and weight loss
	Tick infestation	Parasite	Anemia, hair loss and damage
	Sore mouth	Virus	Loss of appetite and weight, lesions
	Nasal botfly	Parasite	Sneezing and coughing
	Gastro-intestinal parasitism	Bacterial, virus, or parasite	Diarrhea

Source: Fieldwork, February 2025; Annual reports from the Sub-divisional Delegation of Livestock, Fisheries and Animal Industries for Babadjou

The results gathered and presented in Table 3 show that health related vulnerability threats to livestock farming in Babadjou Sub-division are manifold and vary with different livestock. For cattle, diseases like cattle plague, trypanosomiasis and anthrax were reported in the study area. These diseases that attack cattle were reported to have caused great losses in the study area. For poultry farming, avian influenza, coccidiosis and Newcastle diseases were reported during the study as the major diseases that attack fowls in the study area. The diseases are either caused by a parasite or virus.

As for pigs, only one major threat was identified during the study including, African swine fever. According to Tambi and Anyah (2019), this African swine fever is a highly contagious and deadly viral disease affecting both domesticated and wild pigs. It is a significant threat to global food security and the livelihood of people who depend on pig farming. This is because pig farming provides a major pathway through which poor rural families can improve their incomes Nji and Fonteh (2002).

Results in Table 3 also established that livestock such as goats and sheep are exposed to diseases attack like helminthiasis, tick infestation, nasal botfly, gastro-intestinal parasitism and sore mouth in the study area. Report from focus group discussion in Kombou village revealed that these health related threats to goats and sheep causes weight loss thus making it difficult for livestock dealers to yield more profit. This is because when the goats and sheep taken to the market are not healthy, buyers would often buy at a lower price (Tambi and Anyah, 2019).

3.3. Indigenous adaptation strategies to livestock vulnerability threats

Through field investigations, it was found that indigenous adaptation strategies to livestock vulnerability threats are many and varied. To ascertain these adaptation strategies in the study, several variables were chosen and scaled following the likert five point to express the opinions of livestock farmers and the scores obtained were presented in Table 4.

Table 4: Varied indigenous adaptation strategies to livestock vulnerabilities

Indigenous adaptation strategies to livestock vulnerabilities	Scaling (%)				
	SA	A	D	SD	U
Transhumance	30.3	28.2	29.7	6.0	5.8
Feeding of animals with salt	38.2	30.7	15.7	14.3	1.1
Animal de-ticking	28.5	15.4	25.2	20.9	10.1
Keeping of dogs	23.7	18.1	18.6	19.9	13.9
Application of red oil mixed with kerosene	25.0	21.2	23.4	15.1	13.3
Shooting with rubber gun	15.6	14.4	33.0	22.5	14.5
Animal feed mixed with pepper	28.7	24.1	17.3	10.1	19.8
Animal feed mixed with salt	24.7	17.3	15.1	8.1	34.8
Traditional cross breeding	23.2	21.6	12.6	18.6	24.0
Others; increase price of meat	30.2	30.7	15.7	14.3	9.1

Source: Fieldwork, February 2025

Analysis of the results for indigenous adaptation showed ten identified indigenous adaptations strategies to livestock vulnerability threats as practiced by livestock farmers in the study area. These include transhumance, feeding of animals with salt, animal de-ticking, keeping of dogs, application of red oil mixed with kerosene, shooting with rubber gun, animal feed mixed with pepper, traditional cross breeding, and increase price of meat. As a result of pastures deficit during the dry seasons, about 58% of cattle rearers in the study area have resorted to the practiced of transhumance. During dry seasons that are often characterized with pastures deficit, cattle rearers move down the valleys of Bamelo, Nfindo, Takang found along the foot of mount Bamboutos, where they can find fresh pastures to feed their cows. Early in morning, cattle are taken to these wetland areas where they are allowed to graze, while in the afternoon they are taken back to the hills where the grazers live. In the riverine wet plains of Kombou, along the river Fah'fo, cattle rearers due to pastures deficit up the hill of mount Bamboutos often negotiate with farmers to feed their cattle on their farms after they most have harvested their market gardening crops. Figure 2 further presents a farm in the Kombou wetland with cattle grazing on it during the dry season.



Fig. 2. Cattle grazing on farm along river Fah'fo in Kombou village

Source: Fieldwork, February 2025

These cattle are grazed in this area because the pastures are still fresh. These farmers reported that they always accept that cattle should be grazed on their farms as a means to improve soil productivity through cow dung. Consequently, further field testimonies revealed that this has created serious farmer/grazer conflicts in the study area. This is because some rearers often practice this without the knowledge of farmers thus resulting to tensions between the crop farmers and the rearers. Sometimes, rearers in the course of grazing their cattle in negotiated farms often snatched into other peoples farms creating serious conflicts. Zeller and Sharma (2000) opined that livestock farming should not be only evaluated in the negative aspect as it is also a source of fertilizer to farmers and can enhance soil productivity and crop yields.

Equally, the results on Table 3 show that in order to reduce the theft of goats and sheep, above 65% of rearers have resorted to the feeding of these particular livestock with salt. This is either through hand giving or mixing of animal feed with salt. It is done with the belief that it will cause the animals not to go far away

from household homes so that thieves cannot trap them. Apart from this strategy, the study results in Table 4 also showed that the keeping of dogs is another strategy to reduce theft of domesticated animals in the study area. In this case, dogs are reared in household homes to chase away thieves whenever they come to steal. During field discussions, livestock keepers especially rearers of traditional fowls in villages like Balepo, Ngagong and Bamenduo further revealed that reared dogs also help to protect fowls from wild animals that feed on them. These include hawks and bush cats.

In response to animal parasites such as ticks, fleas, lice and mites that feed on animals' blood, and are the major transmissible diseases vectors to animals, about 43% of the livestock farmers during field investigations indicated to have been using the process of animal de-ticking. That is, lice and ticks are removed from goats, sheep, pigs, cattle and guinea pigs skin by the use of hands. Beyond this strategy, about 46% of livestock farmers further established that at times, red oil mixed with kerosene is applied on animals' skin in order to kill the parasites. This is mostly used on fowls attacked by small jiggers that often attack the head and eyes of locally reared fowls as locally called "country fowls". Following the same reasoning, field testimonies during the study added that in some cases, black waste oil drained from engines of motto cycles, cars, grinding mills among others are applied on animals' skin to intoxicate the parasites that feed on them. This is done with the belief that when these parasites suck the waste oil they will die in a short time.

With regards to the strategies employed to minimize or prevent bird flu, also known as avian influenza that often attack fowls, above 50% livestock farmers especially poultry owners revealed that feed mixed with red pepper are given to fowls when contaminated by the disease or even before to prevent them from being affected. To this, livestock farmers often grind hot pepper and mixed it up with corn chaff or feed before keeping it to fowls to feed on. They believed that when it is given to fowls, the pepper will kill the diseases. Field discussions further stressed out that whenever news about bird flu start circulating, feed mixed with pepper is the first thing they often give to fowls to prevent them from contamination.

Concerning the strategies used to minimize the cost of production resulting from rising price of feed, about 60% of livestock rearers revealed that when the price of feed increase, they too also increase the price of reared animals in order to meet the cost of production. Through field discussions supported by direct field observations, it was found that mostly meat consumers often pay the price. This is because whenever the price of feed increases in the study area, livestock farmers often pushed the burden to consumers by simply increasing price. To this, the consumers have no choice than to buy or stay away from consuming meat. A study by Azibo and Kimengsi (2015) in the Northwest Region of Cameroon some judged the indigenous adaptation strategies by farmers to livestock vulnerability threats to be weak, suggesting the continuous vulnerability of the livestock breeders.

4. Conclusion

The study sought to examine livestock vulnerability threats and indigenous adaptation strategies in Babadjou Sub-division. The study revealed that several livestock species are reared in the area, and livestock farming is exposed to several vulnerability threats that cut across environmental (water scarcity and pastures scarcity market), price volatility (consumers preference and price of feed),

production (theft and adequate breeding skills and health (diseases and parasites attacks). As a means of survival, livestock farmers have resorted the practiced of transhumance, feeding of animals with salt, animal de-ticking, keeping of dogs, application of red oil mixed with kerosene, shooting of hawks with rubber gun, animal feed mixed with pepper, animal feed mixed with salt and traditional cross breeding which were all strongly agreed to be the various indigenous adaptation strategies to the vulnerability threats to livestock production in Babadjou Sub-division. Despite some of the challenges encountered by the study such as lack of secondary data and incomplete coverage of the entire Sub-division, the findings could provide the basis for improved livestock farming in the area. while it recommends further studies to be carried out in the domain of drivers of livestock vulnerability and factors affecting successful adaptation strategies to vulnerability threats, the following practical recommendations towards the sustainability of livestock farming in the area are suggested;

1. Tax on imported chemical fertilizers, pesticides and insecticides used in enhancing maize and soya beans production should be reduced in order to boost feed production.
2. Price controls should often be carried out on suppliers of animal feed in order to reduce exploitation of livestock farmers.
3. Trainings on feed production should be carried out in order to educate livestock farmers on how to manufacture animal feed.
4. Extension services should be offered to support livestock farmers in adopting best practices and technologies that can boost livestock production.
5. The Sub-divisional Delegation of Livestock and Fisheries should encourage livestock farmers to form Common Initiative Groups (CIGs) through which they can cultivate money and used it in buying animal feed in bulk in order to reduce loses from buying in small quantities from retailers.
6. The livestock farmers should ensure to integrate both the indigenous and scientific strategies in the fight against livestock vulnerability threats.

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