



Key Barriers to Livestock Development in Baghlan Province: Insights from Livestock Farmers

Muhammad Asef Shaiq^{1*}, Sebghatullah Subat², Moienuddin Naiemi³ Ghulam Rasoul Fazli⁴

¹Department of Agricultural Economic and Extension, Faculty of Agriculture, Baghlan University, Baghlan, Afghanistan

^{2,3}Department of Animal Science, Faculty of Agriculture, Baghlan University, Afghanistan

⁴Ph.D. in Food Science and Technology, Kunduz Afghanistan

Email: asef.shaiq@gmail.com

Abstract

Livestock farming is a fundamental pillar of Afghanistan's economy, playing a crucial role in ensuring food security, creating employment, and sustaining the livelihoods of rural households. This study aims to identify and prioritize the key barriers to livestock development from the perspective of livestock farmers in Baghlan province. The target population included active farmers which 215 individuals were purposively selected. Data were collected using a researcher-designed questionnaire and analyzed through descriptive statistical measures such as mean, standard deviation, and coefficient of variation. Results showed that high feed costs, lack of quality feed, insufficient knowledge of scientific livestock practices and shortage of specialized equipment are the major obstacles to livestock development in the region.

Keywords

Afghanistan; Animal Husbandry Challenges; Animal Husbandry Extension; Baghlan; Husbandry

موانع کلیدی توسعه مالداري در ولايت بغلان: ديدگاه مالداران

محمد آصف شايق^۱، صبغت الله ثبات^۲، معين الدين نعيمي^۳، غلام رسول فضلي^۴

^۱ديپارتمنت اقتصاد و توسعه زراعتي، پوهنځي زراعت، پوهنتون بغلان، افغانستان

^{۲,۳}ديپارتمنت علوم حيواني، پوهنځي زراعت، پوهنتون بغلان، افغانستان

^۴دكتورای علوم و صنايع غذايي، کندز، افغانستان

ایمیل: asef.shaiq@gmail.com

چکیده

مالداري ستون اساسي اقتصاد افغانستان است که نقش مهمی در تضمین امنیت غذایی، ایجاد اشتغال و حفظ معیشت خانوارهای روستایی ایفا می‌کند. با این حال، توسعه این بخش با چالش‌های مهمی روبرو است که مانع بهره‌وری و پایداری آن می‌شود. هدف این مطالعه شناسایی و اولویت‌بندی موانع کلیدی توسعه مالداري از دیدگاه مالداران ولايت بغلان می‌باشد. بنابراین، جامعه آماری این تحقیق شامل مالداران فعال در پرورش گاو، بز و گوسفند بود که به تعداد ۲۱۵ نفر به صورت هدفمند انتخاب شدند. داده‌ها با استفاده از پرسشنامه محقق ساخته جمع‌آوری و از طریق معیارهای آماری توصیفی؛ مانند میانگین، انحراف معیار و ضریب تغییرات تجزیه و تحلیل شدند. یافته‌ها نشان داد که هزینه‌های بالای خوراک دام، کمبود خوراک با کیفیت، دانش ناکافی از شیوه‌های علمی مالداري، کمبود تجهیزات تخصصی و سیستم‌های ضعیف قیمت‌گذاری و کنترل بازار، موانع اصلی توسعه مالداري در منطقه مورد مطالعه هستند.

افغانستان؛ بغلان؛ توسعه مالداري؛ چالش‌های مالداري؛ مالداري

واژه‌های کلیدی

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Introduction

الحمد لله رب العالمين و الصلوة و السلام على سيد المرسلين و على آله و أصحابه أجمعين .

The rapid growth of the human population, accompanied by urbanization and economic development, has significantly impacted livestock and poultry production systems (Abu Hatab et al, 2019). In recent decades, particularly in developed countries, sustainable development in the livestock industry has led to advancements such as improvements in purebreds, enhanced new generations of livestock and poultry, optimized feeding practices, and elevated standards of animal health and management. These developments have facilitated the production of high-quality animal products and the expansion of related processing industries, playing a crucial role in the economic growth of these countries (Rudbari et al., 2023).

The production of animal products constitutes the backbone of rural households' livelihoods and plays a vital role in ensuring the survival and resilience of these families during crises. The raising and management of livestock is one of the most important avenues for low-income rural families to increase their income and improve their social status by utilizing available resources (Zahir et al., 2024). Animal husbandry, as a crucial component of the food production system, plays a key role in providing protein products such as meat, milk, and eggs, while also supplying raw materials needed by industries, including wool, hair, leather, and hides (Solomon, 2003; Tegegne, 2004). Beyond its economic dimension, livestock farming has a significant role in ensuring food security and improving public health in human societies.

The livestock sector in Afghanistan holds a prominent economic position, with over 80 percent of the population relying on animal products as their primary source of income and daily nutrition (Azizi, 2024). But, adhering to proper animal care and nutrition principles is essential for maintaining productivity in this sector. Studies showed that livestock production in this country faced various challenges, including low-quality animal products, weaknesses in management and technical systems, and a shortage of or substandard feed (Nienaber & Hahn, 2007). Collectively, these factors

hinder the enhancement of productivity and sustainability in livestock systems in Afghanistan and similar countries.

The development of animal husbandry in Afghanistan, as a fundamental pillar of the rural economy, plays a crucial role in ensuring food security, creating employment, reducing poverty, and sustaining rural household livelihoods. However, this sector has faced serious challenges in recent years, including limited access to financial resources, weak technical infrastructure, inadequate veterinary and health services, rising costs of livestock inputs, insufficient markets for product sales, and insufficient attention to education and capacity-building for livestock owners. These factors have not only reduced livestock production but have also threatened the competitiveness and economic sustainability of animal husbandry. Accordingly, this study aims to investigate, identify, and analyze the most significant barriers to the development of animal husbandry in Afghanistan, particularly from the perspective of livestock farmers and herders. Using field data and systematic analysis, the study seeks to identify the main challenges limiting the growth and prosperity of this sector. The findings can assist policymakers, development planners, and support organizations in designing and implementing effective, practical solutions grounded in real findings and local needs to improve the status of animal husbandry. Furthermore, this research can lay the groundwork for formulating sustainable strategies for economic reconstruction and development in the country's rural areas.

Various studies have been conducted on the challenges of livestock development abroad; however, none have addressed significant challenges from the perspective of farmers within the country. For instance, (Omar et al. 2024) concluded that challenges such as climate change and environmental degradation could lead to livestock losses, significantly impacting farmers' livelihoods. Dostain et al. (2021) reported that 50% of livestock farmers believed that the socio-economic conditions of livestock farming had not improved significantly in their study. Munib Rehman and Mumtaz (2023), under the title "Challenges in Growth of Livestock and Dairy Development Sector in Punjab," pointed out the favorable climatic and land characteristics in Punjab for agriculture and livestock farming. Shahzad (2022) identified poor management, inefficiencies, inappropriate

genetic improvements, and imbalanced nutrition as barriers to improving livestock production in his study titled "The need for national livestock surveillance in Pakistan." Eeswaran et al. (2022) concluded that issues such as insufficient grazing land, lack of quality feed, water scarcity, climate change, inadequate livestock management, weak marketing, and economic and social limitations are among the foremost challenges to livestock development in their study titled *Current and Future Challenges and Opportunities for Livestock Farming in West Africa: Perspectives from the Case of Senegal*. Tambi et al. (2019), in their study titled "Constraints and challenges in livestock production in Cameroon," found that key challenges include nutrition, diseases, inadequate animal housing, access to clean water, and insufficient extension services. Amba Chufa et al. (2022) found that inadequate human resources and infrastructure for health services, low animal productivity, unviable milk prices, and the absence of organized markets for livestock products are barriers to livestock development. Kidanemariam and Fesseha (2020), under the study *Assessment on livestock production: Opportunities and challenges to livestock households in Welkayt District*, highlighted main challenges such as the lack of quality and quantity in animal feed (45.8%), weak technology supply (43.8%), and inadequate health services (41.7%). Zia Ullah Khan (2022) stated that development strategies for the livestock sector in Pakistan require the development of technologies, scientific research, and the establishment of efficient collection and distribution networks to enhance livestock market facilities, according to his study. Findings from previous studies indicate that the livestock sector faces multiple challenges. These challenges not only result in animal losses and decreased income for farmers but also negatively impact the livelihoods and food security of communities. Earlier empirical research has identified development opportunities within this sector; however, leveraging these opportunities requires improvements in infrastructure, resource management, and the formulation of appropriate strategies. Overall, enhancing the livestock sector's status necessitates attention to factors such as the provision of quality feed, optimized management, and the establishment of organized markets.

Previous studies on livestock development, although valuable, have often failed to comprehensively examine the full range of challenges facing this sector from the direct perspective of livestock farmers. Most of these studies lack a systematic approach to identifying and prioritizing the key barriers. In contrast, the present research aims to fill this gap by focusing on livestock owners' actual experiences and views and systematically analyzing and prioritizing the major constraints limiting livestock development. Given the increasing role of livestock farming in ensuring food security, supporting rural livelihoods, and reducing poverty in Afghanistan, there is a pressing need for context-specific, practical, and farmer-oriented research. This study is designed to address that need and is expected to contribute to the formulation of effective policies and strategies for the sustainable development of the country's livestock sector. Evidence shows that livestock farming in Afghanistan faces significant challenges, including drought (Shaiq et al., 2024). In the area of animal production, the lack of adequate infrastructure, the emergence of animal diseases, insufficient education and empowerment for farmers, the impacts of climatic changes, the absence of markets for livestock products, and a lack of financial support from the government and private institutions, as well as inadequate infrastructure for the care and feeding of animals (such as water), have led to decreased productivity and health among livestock. This situation has imposed both direct and indirect effects on the sector. Additionally, challenges such as the onset of various diseases affecting animal husbandry, including both contagious and non-contagious diseases, have compromised animal production and adversely affected the rural economy. Moreover, the impacts of climate change and various natural disasters, including droughts, floods, earthquakes, and heavy snowfall, have degraded pastures and grazing lands, placing farmers' water resources at risk. This study examines the primary challenges of livestock development in Baghlan Province from the perspective of farmers. This study aims to identify and analyze these barriers from the perspective of livestock keepers, to provide a foundation for practical, evidence-based, and locally adapted solutions to promote the sustainable development of livestock farming in Afghanistan. By identifying key challenges related to economic, feed, extension, and educational factors, market issues; climatic

barriers, infrastructural constraints, and production obstacles, this study proposes valuable solutions to enhance policymaking and planning in the field of livestock development in the country.

Methodology

Study Area

The study was conducted in Baghlan Province, an important industrial and agricultural region of Afghanistan. Strategically located in northeastern Afghanistan, Baghlan connects eight northern provinces with Kabul, the capital. It borders Panjshir, Takhar, and Kunduz to the northeast, Samangan and Bamiyan to the west, and Parwan to the south. The province's main agricultural products include wheat, rice, melons, turnips, cotton, potatoes, and onions. Baghlan covers an area of 21,112 square kilometers and has an estimated population of approximately 1,053,200 according to the National Statistics and Information Authority (NSIA, 2022). This province is recognized as one of the key regions for agricultural and livestock production in northern Afghanistan. A significant portion of rural households in this province rely on livestock as their primary source of livelihood. However, despite its importance, the livestock sector in Baghlan faces serious challenges and limitations that have not yet been systematically studied. The selection of this province is based on its economic role in livestock production, its geographical diversity, and the existing research gap in this area. Therefore, the findings of this study can reflect the fundamental challenges faced by other provinces with similar conditions.



Figure 1: Map of Afghanistan and the study area (Shaiq et al., 2024)

Data Collection Tools

This study employed a survey research design to collect primary data. The main research tool was a questionnaire. To design the questionnaire, an initial version was created after reviewing the literature and existing theories related to the research topic. This questionnaire was then revised with the help of a group of faculty members from the department of Agricultural Economics and Extension and the department of Animal Sciences at Baghlan University. After incorporating their feedback, the final questionnaire was developed as a closed format with specified scales. It is worth noting that the questionnaire's reliability was assessed using Cronbach's alpha. The analysis of the initial 30 questionnaires yielded a Cronbach's alpha coefficient of 0.83, indicating that the instrument has an acceptable and satisfactory level of reliability. The measurement scale used for the data, based on the type of information, included nominal and ordinal scales (a five-point Likert scale). The questionnaire consisted of two parts. The first part included respondents' personal information. The second part of the questionnaire was dedicated to examining the main obstacles to livestock development. It was structured around six key axes: economic challenges, animal feed-related challenges, extension-education challenges, health and production challenges, infrastructure challenges, and market challenges. This structure allowed the researcher to provide a more comprehensive and accurate assessment of the obstacles to livestock development from the perspective of livestock farmers.

Study Population

The study population comprised all livestock farmers engaged in the breeding of cattle, goats, and sheep in Baghlan Province. A total of 215 samples were collected using a researcher-designed questionnaire. It is important to note that this study was conducted using a purposive sampling method (Robinson, 2024)

Data Analysis Methods and Tools

For analyzing the data, in addition to descriptive statistics such as mean and standard deviation, the Coefficient of Variation (CV) was also employed. The coefficient of variation is a relative index obtained by dividing the standard deviation of a variable by its mean (Pélabon et al., 2020). Higher values of the coefficient of variation indicate greater dispersion of a variable's values, while lower values reflect greater concentration around the mean (Kalantari, 2016). It is noteworthy that all data analysis was conducted using SPSS software, version 26.

Findings

The findings of this study revealed that 186 respondents (86.5%) had not participated in any educational programs. Furthermore, among the total of 215 respondents, 104 individuals (48.4%) were illiterate, while 58 individuals (27%) possessed basic reading and writing skills (Table 1).

Table 1. Characteristics of respondents

| Variables | Specifications | Numbers | Percentage |
|--|-----------------------|----------------|-------------------|
| Education | Illiterate | 104 | 48.4 |
| | Read and write. | 58 | 27.0 |
| | High School | 34 | 15.8 |
| | B.Sc. | 18 | 8.4 |
| | M.Sc. | 1 | 0.5 |
| Received the extensional and technical training in the last 5 years | Yes | 29 | 13.5 |
| | No | 186 | 86.5 |
| Total | | 215 | 100 |

Prioritization of the Main Barriers to Livestock Development in the Study Area from the Perspective of Farmers

As mentioned in the methodology section, the CV was used to identify the most significant barriers to livestock development within each recognized component (Table 2). The research findings revealed that the primary

economic obstacles facing the livestock sector in the study area include, in order of significance: high market feed prices, limited access to veterinary medicines and their high costs, and farmers' limited financial capacity to purchase economically viable animals. Among the variables related to the feed component, the highest consensus was observed regarding the challenges posed by insufficient-quality compound feeds for farmers, the increased allocation of grazing lands to natural resources, and the limited capacity of existing pastures. Additionally, regarding the promotional and educational challenges, the greatest agreement was found on the lack of development of rural knowledge in scientific animal husbandry practices, low awareness among farmers about enhancing livestock production, and a weak research and development system in the field of livestock. Furthermore, infrastructural challenges in livestock sector development were assessed using nine variables, revealing that the highest level of consensus was associated with the lack of specialized equipment in livestock farming units. The findings also indicated that weak pricing systems and price control for inputs and livestock products, the absence of clear sales markets, and the presence of intermediaries in the sale of livestock products were among the market challenges with the highest level of agreement (Table 2).

Table 2. Priority of the most important obstacles to livestock development in the study area from the perspective of livestock farmers

| Economic Challenges | Mean | Std. Deviation | CV |
|--|-------|----------------|-------|
| High prices of feed materials in the market | 3.926 | 1.205 | 0.307 |
| Poor access to veterinary medicines and their high costs | 3.633 | 1.318 | 0.363 |
| Weak financial capacity of farmers to purchase economically viable animals | 3.349 | 1.224 | 0.366 |
| Low relative prices of products compared to the costs of raising livestock | 3.391 | 1.281 | 0.378 |
| Lack of insurance for livestock products | 3.693 | 1.433 | 0.388 |
| Insufficient liquidity and lack of adequate capital to establish livestock farms | 3.484 | 1.390 | 0.399 |
| Low risk-taking spirit among farmers | 3.256 | 1.338 | 0.411 |

| | | | |
|---|-------------|-----------------------|-----------|
| Absence of venture capital funds to secure financial resources | 3.316 | 1.545 | 0.466 |
| Lack of support from financial institutions for livestock units | 3.112 | 1.512 | 0.486 |
| Lack of credit and bank facilities for low-income farmers | 3.098 | 1.607 | 0.519 |
| Feed-Related Challenges | Mean | Std. Deviation | CV |
| Insufficient availability of quality compound feeds for farmers | 3.549 | 1.263 | 0.356 |
| Use of traditional methods in animal feeding | 3.665 | 1.360 | 0.371 |
| Lack of adequate and suitable agricultural land for growing forage and preparing feed for animals | 3.581 | 1.364 | 0.381 |
| Degradation of pastures due to increased grazing and lack of efforts to rehabilitate them | 3.526 | 1.346 | 0.382 |
| Cultivation and encroachment on grazing lands by farmers and villagers | 3.391 | 1.296 | 0.382 |
| Farmers' unfamiliarity with new compound feeds | 3.619 | 1.409 | 0.389 |
| Promotional-educational challenges | Mean | Std. Deviation | CV |
| Lack of development in rural knowledge regarding scientific animal husbandry practices | 3.335 | 1.346 | 0.404 |
| Low awareness among farmers about enhancing livestock production | 3.056 | 1.256 | 0.411 |
| Existence of a weak research and development system in the livestock sector | 3.228 | 1.339 | 0.415 |
| Decreased participation of women in livestock activities | 3.014 | 1.266 | 0.420 |
| Insufficient knowledge and skills among farmers in breed selection and breeding practices | 3.437 | 1.496 | 0.435 |
| Lack of training courses aimed at enhancing farmers' capacities | 3.330 | 1.453 | 0.436 |
| Lack of interest and desire of rural youth for livestock farming | 2.693 | 1.286 | 0.477 |
| Health and Production Challenges | Mean | Std. Deviation | CV |

| | | | |
|---|-------------|-----------------------|-----------|
| Inadequate hygiene practices at livestock farms | 3.479 | 1.249 | 0.359 |
| Low productivity of local animals in milk and meat production | 3.140 | 1.219 | 0.388 |
| Difficulty in diagnosing contagious and non-contagious diseases on livestock farms | 3.316 | 1.309 | 0.395 |
| Dependence on imported inputs for dairy product production | 2.693 | 1.183 | 0.439 |
| Declining raw milk production in Baghlan Province and a reduction in its consumption nationwide | 2.781 | 1.258 | 0.452 |
| Infrastructural Challenges | Mean | Std. Deviation | CV |
| Insufficient specialized equipment in livestock farming units | 3.619 | 1.239 | 0.343 |
| Excessive livestock losses due to disease outbreaks and farmers' lack of awareness regarding the types of diseases and their management | 3.442 | 1.352 | 0.393 |
| Shortage of trained professionals in the field of animal husbandry | 3.558 | 1.439 | 0.404 |
| Absence of breeding centers and adequate laboratories in the region | 3.451 | 1.426 | 0.413 |
| Inaccessibility of veterinarians and veterinary services | 3.274 | 1.358 | 0.415 |
| Lack of access to technology related to animal production | 3.265 | 1.387 | 0.425 |
| Decreased government support for livestock product production | 3.460 | 1.921 | 0.555 |
| Decreased government support for livestock product production | 3.595 | 2.482 | 0.690 |
| Market Challenges | Mean | Std. Deviation | CV |
| Weak pricing and control systems for inputs and livestock products | 3.507 | 1.230 | 0.351 |
| Absence of defined markets for the sale of livestock products and the presence of intermediaries | 3.442 | 1.213 | 0.353 |

| | | | |
|--|-------|-------|-------|
| Issues related to production, market structure, and consumption of livestock products | 3.428 | 1.213 | 0.354 |
| Low relative prices of products in comparison to production costs | 3.423 | 1.250 | 0.365 |
| Challenges in establishing effective distribution channels for livestock products | 3.284 | 1.252 | 0.381 |
| Price fluctuations of animal products | 3.219 | 1.337 | 0.415 |
| Smuggling of live animals into the country and associated risks from disease in smuggled animals | 2.763 | 1.439 | 0.521 |

Discussion

The present study examines the barriers to the development of the livestock sector from the perspective of livestock farmers in Baghlan province. The findings indicate that livestock farming in this province faces numerous challenges that negatively impact the sector's development. The results show that livestock farmers' educational levels are generally very low. Specifically, 48.4% of respondents are classified as illiterate, and only 27% of the farmers have basic reading and writing skills. Furthermore, only 13% of livestock farmers have participated in training courses over the past five years. Thus, given this low level of education, it is essential to employ appropriate learning methods to empower and enhance livestock farmers' skills and knowledge. This could play a significant role in improving the livestock sector's status in the province.

This study identifies the primary economic barriers affecting the livestock sector, including high feed prices and farmers' financial constraints in acquiring economically viable animals. These barriers undoubtedly lead not only to a reduction in animal production but also to the potential hindrance of sustainable development within the sector, subsequently contributing to increased poverty and economic inequalities within the community. In fact, economic challenges are particularly pronounced in countries with limited natural resources. Research has shown that high feed prices directly impact production costs and profit margins for livestock farmers. Additionally, the difficulty of accessing quality livestock medicines at reasonable prices results in lower product quality and higher veterinary costs for farmers. Moreover, farmers' financial

constraints prevent them from investing in high-yield livestock. The findings related to these factors align with the results of the research conducted by (Dostain, 2021).

Another barrier to the development of livestock farming in Baghlan province is the challenge of animal feed. Specifically, the shortage of high-quality composite feed and the allocation of rural pastures to natural resources have reduced the availability of nutrition for livestock and diminished farmers' ability to provide adequate feed. Undoubtedly, reliance on traditional feeding methods has led to lower efficiency and may exacerbate health issues. The absence of strategic food reserves, combined with insufficient ongoing protection of natural resources that constitute pasture capacity, has rendered farmers unable to secure enough feed for their animals during dry seasons. Notably, this research finds that rural residents' awareness and knowledge of scientific livestock management practices are extremely low, with nearly 50% of respondents illiterate. In this context, farmers' lack of awareness of modern breeding methods and production optimization techniques can lead to reduced productivity and increased costs. It appears essential to implement educational and outreach programs tailored to farmers' knowledge levels and needs more rigorously to improve this situation. The findings regarding these barriers are consistent with the research findings of (Rasu Eeswaran, 2022; Amba Chufal, 2022).

Additionally, addressing infrastructural barriers significantly impacts the development of livestock farming. The high mortality among livestock due to disease outbreaks and the lack of awareness among farmers about various diseases and their management significantly affect production. Studies have also shown that a shortage of specialized equipment and professionals in livestock management and veterinary science contributes to a decline in the quality of services and products. Furthermore, the pricing system and control over input and product prices pose a serious challenge in the studied region. The presence of intermediaries in the market for animal products results in reduced profits for farmers and increased final prices for consumers. Based on the findings of this study, the following recommendations are proposed: First, the implementation of comprehensive forage cultivation plans is essential to ensure food reserves

for dry seasons. Second, the development and promotion of scientific research in health, nutrition, and breed improvement, along with the establishment of research centers in the studied region, are considered critical mechanisms. Third, support for the production of native livestock and encouragement of the preservation of local breeds, given their significant resilience to harsh climatic conditions, is imperative. Fourth, the development of financial support mechanisms and insurance options for livestock producers should be prioritized to mitigate financial risks associated with diseases and natural disasters. Finally, promoting educational opportunities for livestock producers by organizing short- and long-term training programs focused on herd management, health, and breeding practices is of great importance.

Conclusion

The findings of this research indicate that several factors constitute key barriers to the development of livestock farming in the studied region. Among the most significant of these barriers are the high prices of feed in the market, the lack of quality composite feeds, inadequate access to contemporary scientific knowledge and training in livestock management, poor hygiene conditions in farms, insufficient specialized equipment in livestock breeding units, and deficiencies in the pricing and monitoring systems for animal inputs. These barriers not only negatively impact the productivity and profitability of livestock farming but also pose serious challenges to the sustainable development of this sector. Therefore, sustainable livestock development in Afghanistan, particularly in rural areas, requires a comprehensive, multidimensional approach. This approach should include enhancing technical and economic infrastructure, empowering farmers through specialized training, and establishing effective support systems to ensure sustainable access to quality inputs, financial facilities, and market opportunities. In this context, collaboration among government agencies, non-governmental organizations, research institutions, and livestock farmers is essential. Through coordinated, evidence-based planning, the identified barriers can be addressed, paving the way for sustainable growth in the country's livestock industry. This study examined the challenges of livestock development in Baghlan province, and its findings may not be fully generalizable to other regions

of Afghanistan. One of the main limitations of this research is the use of closed-ended questionnaires, which may not fully capture the deeper, qualitative perspectives of livestock farmers. Therefore, to obtain a more complete picture of the barriers to livestock development at the national level, future research should employ mixed methods, including both qualitative and quantitative data, and be conducted in other provinces.

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