

EMPOWERING LIVESTOCK FARMERS THROUGH HEALTHY LIVESTOCK AND NUTRITIOUS FEED TO IMPROVE THE WELFARE OF RESIDENTS

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Abstract

Goat farming is a lucrative local economic opportunity in rural areas due to access to extensive land and local feed sources. This business has the potential to generate savings and increase community income. However, despite its potential, livestock farming also presents challenges, including livestock care, pens, feed management, and the need for cooperation and coordination among farmers. These potential and challenges must be addressed to sustainably increase livestock productivity in Kragoan Village Hamlet, Susukan District, Semarang Regency. This community service activity aims to provide training on the importance of healthy livestock, which can be achieved through a healthy pen structure, including sturdy construction, adequate lighting, and proper hygiene. Special care is also needed for sick goats. Another challenge is the importance of healthy and nutritious feed. Farmer groups, whether organizations or institutions, are also involved, with the aim of encouraging coordination, training, education, and collaboration among farmers. Furthermore, these farmer groups can serve as a platform for obtaining government support in the form of feed, seeds, training, and marketing opportunities. By following proper maintenance guidelines and managing feed and waste effectively, it is hoped that the productivity and health of goats in Kragoan can increase significantly.

Keywords: Healthy Pens, Goat Farming, Feed Management, Waste Management, Livestock Groups.

JEL: Q12, Q16, dan Q13

INTRODUCTION

Economic resilience refers to a country/region's ability to withstand challenges, threats, obstacles, and disruptions. This issue has become a primary concern for the government in increasing economic growth. The government strives not only to pursue economic growth but also to ensure that the country has a strong economic capacity to face various threats, such as COVID-19.

National economic resilience can begin by strengthening the village economy, for example, through goat farming. The presence of goat farming in rural households can increase the economic resilience of rural households. This is because goats provide animal protein and a versatile, easily liquid economic asset for households in times of need ([FAO](#),

2021). From a rural development perspective, goat farming is often viewed as a component of community livelihood initiatives, particularly in enhancing household financial resilience (Chambers & Conway, 1992).

Goat productivity is greatly influenced by the quality of the feed provided and the housing system used. Unbalanced nutrition, meaning a diet lacking essential nutrients, can disrupt animal growth, reproduction, and health (Abrianto, 2025). Standardizing livestock feed is crucial to meet calorie, protein, and mineral requirements (Puspitasari, 2025). In addition to feed, barn design that adheres to optimal ventilation—meaning adequate airflow for air quality and cooling, proper sanitation, and an effective drainage system, which is a way to remove excess water and waste, is crucial for disease prevention and increased production efficiency (Soeharsono, 2019).

Challenges often faced by small-scale livestock farmers are technical and institutional. Independent farms or farmers without community ties sometimes have limited access to information, capital, and markets (Saragih, 2020). These limitations make it difficult for independent farmers to expand their businesses. They rely solely on personal capital and local markets.

To increase economies of scale and farmer bargaining power, institutional development is necessary through the formation of livestock groups. This methodology aligns with the concept of economic development, which emphasizes the importance of institutions in increasing productivity in the rural sector (Todaro & Smith, 2020). The formation of livestock groups is expected to increase goat productivity, inherently linked to the combination of superior technical management (housing and feed) and strengthening farmer institutions. Therefore, it is essential for stakeholders to actively support the creation and facilitation of livestock groups to advance the modernization and sustainability of smallholder livestock production.

METHOD

This community service activity adopts a case study approach combined with Participatory Action Research (PAR), which emphasizes active collaboration between researchers and the community in identifying problems, formulating solutions, implementing actions, and evaluating outcomes related to meat goat farming development in Kragoan Village. This approach ensures that the community is not merely treated as respondents but as co-researchers who are directly involved in every stage of the empowerment process.

The PAR process in this program follows a cyclical framework consisting of (1) problem identification and reflection, (2) collaborative planning, (3) action implementation, and (4) evaluation and reflection. In the initial stage, the team worked together with local stakeholders—including the neighbourhood unit (RT) head, youth group administrators (Karang Taruna), and goat farmers—to identify key challenges in goat farming practices, such as breeding management, feeding systems, housing conditions, and marketing chains.

In the collaborative planning stage, the community and the research team jointly formulated potential solutions and empowerment strategies. These included the initiation of a livestock farmer group, improvement of feeding practices using locally available green fodder, and strengthening institutional coordination among farmers. This stage reflects the core principle of PAR, where decision-making is conducted collectively.

The action phase involved the implementation of agreed interventions, such as facilitating discussions to establish a farmer group, introducing improved livestock management practices, and strengthening community awareness regarding the economic potential of goat farming. Community members actively participated in executing these actions, ensuring that the interventions were grounded in local knowledge and conditions.

Furthermore, continuous observation and participatory evaluation were conducted to assess the effectiveness of the implemented actions. The community and the research team jointly reflected on the outcomes, identified remaining challenges, and formulated follow-up actions. This iterative process strengthens community capacity and ensures the sustainability of the empowerment program.

Data collection methods included semi-structured interviews, participatory discussions, and field observations. Interviews were conducted with selected informants based on specific criteria: (1) the absence of an existing livestock farmer group, (2) support from village authorities and community leaders, and (3) involvement in goat farming activities, either as owners or through profit-sharing systems.

In-depth interviews were also used to capture community expectations and aspirations regarding goat farming development. Documentation techniques included activity logbooks, photographs, and video recordings to support data validity and provide visual evidence of the participatory process.

The analytical method used in this study was descriptive qualitative analysis. Data from interviews, discussions, and observations were categorized thematically and interpreted collaboratively with the community. The results of this analysis served as the basis for designing and refining empowerment strategies in the development of sustainable meat goat farming in Kragoan Village.

RESULT

Interviews during this community service activity were conducted with community leaders, including the neighbourhood association (RT) head, youth group leaders known as Karang Taruna (Taruna Youth Group), and representatives of residents who work as goat breeders. The interviews revealed that almost all residents in Kragoan own goats, contributing to their household income, representing over 90% of families. These goats are raised independently by the local community within their households and can be sold at any time to generate additional income.

Table 1. Result of The Study

No	Aspect	Findings	Quantified	Implication
1	Goat ownership	Most of household own goat (livestock) as an additional source of income and store of asset	>90% of household	Livestock plays a significant role in the local economy
2	Farming system	Goats are raised independently at the household level	All farmers are operating individually	Farming practices remain traditional and household-based
3	Function of livestock	Goats are perceived as a form of saving and emergency assets	> 85% of respondent	Livestock as informal financial security
4	Housing condition	Most of goat shelters are simple and traditionally design, utilized the wooden structures with poor ventilation and sanitation	>70% do not meet the health standards	Boost potential risk for animals' health and productivity
5	Impact of housing	High humidity due to poor drainage and proper air circulation	65% of shelters affected	Increased risk of livestock diseases and reduced productivity
6	Feeding practices	Most farmers rely on natural forage without proper nutritional planning	> 80% of farmers depends on green plants with less additional nutrition	Suboptimal livestock productivity
7	Feeding innovation	Limited use of fermentation of processed feed	Only 20% of farmers utilize fermentation.	Need technological and knowledge improvement
8	Institutional structure	Livestock farming is mostly unorganized and mostly individual-based	No one part of farmer group	Weak institutional support and coordination among farmers
9	Collaboration practices	Limited cooperation in feed supply, animal health, and marketing (supply chain of output)	85% lack of collective action	Economic potential remains underutilized

Furthermore, regarding livestock feed management, approximately 80% of livestock farmers still rely on green plants found in surrounding gardens without adequate nutritional planning. The use of fermented feed or processed alternative feed ingredients is still very limited, at around 20%. This is due, in part, to a lack of comprehensive understanding of animal nutritional needs and financial factors.

However, current practices remain largely traditional and inefficient, as reflected in inadequate housing conditions (>70% below standards), limited feed innovation (only 20% adoption), and weak institutional structures (none of farmers joined farmer group, not organized). This findings indicate that livestock farming practices in Kragoan Village are still individualized and unorganized, for example, through neighbourhood livestock organizations. This results in inadequate institutional collaboration between individual farmers in areas such as feed procurement, livestock health management, or livestock product marketing. Discussions with the neighbourhood unit head and the head of the youth organization revealed community interest in forming livestock groups as a platform for capacity building and collaborative efforts.

Despite these constraints, Kragoan Village demonstrates strong potential for goat farming development. The widespread ownership of goats suggests that the sector already has a solid foundation and high community acceptance, making it easier to implement development programs. The role of goats as a form of savings also indicates that improving livestock productivity could directly enhance household financial resilience.

The existing gaps including poor housing conditions, limited feed innovation, and weak institutional organization are actually represent opportunities for improvement. Interventions such as upgrading shelter standards, introducing low-cost feed technologies (e.g., fermented feed), and providing technical training could significantly increase productivity and reduce livestock health risks.

In addition, strengthening farmer institutions (e.g., forming livestock groups or cooperatives) could improve efficiency in production and marketing, enabling farmers to achieve better economies of scale. With integrated efforts in technology adoption, capacity building, and institutional development, goat farming in Kragoan Village has considerable potential to evolve from a traditional subsistence activity into a more productive and sustainable rural economic sector.

DISCUSSION

Data shows that livestock, such as goats, play a significant role as a local economic resource, including being used for productive savings in rural areas. The high percentage of livestock ownership indicates significant economic potential. However, traditional agricultural practices, inadequate feed management, and the lack of institutional arrangements can limit productivity gains through livestock farming. Housing facilities that do not meet health standards can lead to disease and disrupt animal growth, impacting livestock farmers' incomes. These observations are consistent with various studies on community livestock empowerment, which show that small-scale livestock operations often lack modern technical management, resulting in subsistence levels.

This situation can be demonstrated using a livelihood asset approach, where livestock, such as goats, can be used as physical and financial assets, but their management is not

coordinated to achieve economies of scale. The absence of formal livestock organizations or institutions indicates a lack of collective action that could improve access to knowledge, financial resources, and technical support from external parties.

The gap between the significant economic potential, with most residents owning goats, and the still-traditional practices of goat management is caused by many factors, including limited capital, access to information, and the lack of institutions that can absorb future innovations. These findings call for future initiatives to establish institutions or livestock groups, standardize healthy pens, and provide training in feed management to increase farmer productivity and village economic potential.

Tabel 2. Activity Documentation

No	Activity	Photos
1.	Preliminary assessment with the RT Head of Kragoan Hamlet (An assessment of partner conditions)	
2.	Assessment of healthy drum samples at the designated site	

3.	Preparation of materials for community service activity with the team	
4.	Implementation of community service programs (taken with the regional leader (RT) and leader of the youth group (Karang Taruna))	

5.	Illustrations of nutritious enclosures and ideal animal feed	 
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RESEARCH IMPLICATION

This study indicates that goat pens must be standardized and feed must be properly managed to increase farmer productivity. Healthy pens must be built with good sanitation, ventilation, and drainage, and must be separated from sick goats. Furthermore, education on nutritionally balanced feed management is crucial for livestock growth and health. Furthermore, institutional or organizational factors are essential for farmers to secure support from the government and the private sector, both for training and marketing. With improvements in these various aspects, it is hoped that livestock farming in Kragoan Village will become more productive, sustainable, and beneficial to the community in the long term.

CONCLUSION

Based on interviews and field observations, most residents in Kragoan raise goats as a source of supplemental income and long-term savings. This indicates that goat farming in the region has significant economic potential. The goats raised by the community can be considered a flexible and strategic economic asset that supports the community's daily economy.

Goat farming practices in the Kragoan region are still dominated by traditional methods. The pens used by the community also do not meet health standards. Many standards remain unmet, particularly regarding ventilation, sanitation, and drainage. Feed management for livestock is still unstructured and relies on the availability of natural feed. Consequently,

nutritional requirements are not controlled or meet standards. This situation can limit productivity and pose a risk to livestock health problems.

From an institutional perspective, there are no formal community-based livestock business groups. These formal livestock groups could serve as a forum for coordination, capacity building, and strengthening the bargaining position of goat farmers, helping them address emerging challenges. Although there are no livestock groups yet, interviews with community leaders and representatives indicate that they have a positive outlook if the idea of establishing such groups is implemented in their area. They believe that forming livestock groups is a strategic step towards more focused and sustainable livestock management.

The conclusion from this activity is that the goat farming sector in Kragoan still has potential for development towards a more modern, productive, and sustainable direction. This improvement includes improving housing standards, enhancing feed management, and strengthening community-based institutions among farmers. These efforts are expected to increase livestock productivity and promote the well-being of the Kragoan community.

DECLARATION

The authors would like to express their sincere gratitude to our workplace, the Faculty of Economics and Business (FEB) at Diponegoro University, for their guidance and financial assistance. This assistance was received through the DIPA funding system, which significantly impacted our community service activities. The authors used this support for various field activities involving livestock farmers. We also express our gratitude to the neighbourhood unit (RT), the youth organization (Karuna) chairman, and the goat farmers in Kragoan Village for their involvement and active participation during this community service activity.

- **Author Contribution Statement:** Maulana G.Y. was responsible for conceptualization, needs assessment, and partner identification. Deny C.S. was responsible for manuscript, logistics, and administration. Navi'ah and Wulan were responsible for delivering the outreach and training activities. All authors actively participated in the community service program and approved the final manuscript.
- **Data Availability Statement:** The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.
- **Declaration on Interest Statement:** The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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