

ASSISTANCE IN SUSTAINABLE LIVESTOCK BUSINESS MANAGEMENT BASED ON THE EMPOWERMENT OF SMALLHOLDER FARMERS AS AN EFFORT TO STRENGTHEN NATIONAL FOOD SECURITY

Ibrahim¹, Asmaul Husna¹

¹ Universitas Islam Kebangsaan Indonesia

Email correspondence : ibrahim.ahmadislah@gmail.com

ABSTRACT

National food security is a strategic issue that requires support from various sectors, including the livestock sector. However, most smallholder livestock enterprises still face challenges in business management, production efficiency, and sustainable management practices. This community service program aims to provide assistance in sustainable livestock business management as an effort to strengthen national food security. The implementation methods include identifying partners' problems, conducting training on livestock business management, providing assistance in production management and business record-keeping, and evaluating program sustainability. The target beneficiaries are livestock farmer groups who are expected to improve their knowledge, skills, and independence in managing livestock businesses effectively and sustainably. The results of the program indicate an improvement in partners' understanding of livestock business management, production planning, and awareness of the importance of business sustainability. This program is expected to make a tangible contribution to strengthening national food security through enhancing the capacity of community-based livestock enterprises.

Keywords: Assistance, Business Management, Sustainable Livestock, National Food Security, Community Service

INTRODUCTION

Food security is one of the main pillars supporting national development and community welfare. The availability of adequate, safe, and nutritious food is essential to ensure human well-being and sustainable economic growth. In this context, the livestock sector plays a strategic role in supplying animal-based food such as meat, eggs, and milk to meet community nutritional needs (FAO, 2022).

Smallholder livestock enterprises constitute a major component of the livestock sector in Indonesia. However, many of these businesses still face challenges related to weak business management, low production efficiency, and limited access to managerial knowledge. Inadequate financial management and poor production planning often result in suboptimal productivity and hinder business development (Purwati et al., 2022).

In addition, livestock farmers tend to focus mainly on production activities while paying less attention to sustainability and long-term business management. This condition makes livestock enterprises vulnerable to market fluctuations, rising input costs, and environmental problems.

Therefore, sustainable livestock business management is required to ensure business continuity while maintaining economic and environmental balance (Kurniawati et al., 2025).

Community service programs conducted by higher education institutions play an important role in addressing these challenges. Through mentoring and assistance activities, universities can transfer managerial knowledge, practical skills, and sustainable practices to livestock farmers. Such programs are expected to improve farmers' capacity and independence in managing livestock enterprises effectively (Hendrawan et al., 2023).

Effective livestock business management is not only related to increasing production output but also to improving farmers' ability to plan, evaluate, and make informed decisions. Proper record-keeping, cost analysis, and risk management enable farmers to understand the financial condition of their businesses and identify opportunities for improvement. Strengthening these managerial aspects through structured assistance is essential to enhance the competitiveness and sustainability of smallholder livestock enterprises (Wulandari & Nugraha, 2022).

This community service program was implemented at a livestock farming area located in Juli Km 7, which is dominated by smallholder livestock enterprises with limited managerial resources. Most farmers in this area rely on traditional management practices and have not yet applied systematic business planning or financial record-keeping. These conditions make Juli Km 7 an appropriate location for implementing a sustainable livestock business management assistance program to improve farmers' managerial capacity and business sustainability (Purwati et al., 2022).

Based on these conditions, this community service activity focuses on providing assistance in sustainable livestock business management as an effort to strengthen national food security. The program is designed to enhance farmers' understanding of management practices, improve production planning, and encourage sustainable business behavior. Through this approach, livestock farmer groups are expected to increase productivity and contribute more effectively to national food security goals (FAO, 2022).

LITERATUR REVIEWES

Food system and food security theory emphasize the importance of resilient and sustainable food systems in ensuring long-term food availability and access. A strong food system integrates production efficiency, supply chain management, and sustainability to support national food security. Livestock production plays a critical role in strengthening food systems by providing diverse protein sources and supporting economic stability in rural areas (HLPE, 2021).

Modern agribusiness theory views livestock farming as a business entity that requires professional management and integration along the value chain. Livestock enterprises involve not only production activities but also input management, processing, and marketing strategies. Applying agribusiness principles improves efficiency, competitiveness, and income sustainability for smallholder farmers (World Bank, 2021).

Strategic management theory highlights the need for clear planning, implementation, and evaluation to ensure business sustainability. In livestock enterprises, strategic management enables farmers to anticipate market changes, manage risks, and optimize available resources.

Effective strategies contribute to improved productivity and long-term business resilience (David et al., 2022).

Entrepreneurial orientation theory explains that innovation, proactive behavior, and calculated risk-taking are essential for business development. In the livestock sector, entrepreneurial skills encourage farmers to adopt new technologies, improve management practices, and explore alternative marketing opportunities. Strengthening entrepreneurial capacity supports sustainable livestock business growth (Kuratko, 2023).

Sustainable livestock development theory integrates economic, environmental, and social dimensions in livestock management practices. This theory emphasizes environmentally friendly production, animal welfare, and efficient resource utilization to ensure long-term viability. Sustainable livestock development supports both food security and environmental conservation goals (OECD, 2021).

Rural livelihood theory focuses on improving household resilience through diversified income sources and productive activities. Livestock farming is considered a vital livelihood asset in rural areas because it provides regular income, employment opportunities, and food security. Strengthening livestock management capacity contributes directly to rural livelihood sustainability (Scoones, 2022).

Extension and innovation adoption theory explains how farmers adopt new knowledge and practices through learning processes influenced by social, economic, and institutional factors. Effective extension and mentoring activities facilitate behavioral change and encourage farmers to implement improved livestock management practices. This theory supports the role of assistance programs in community empowerment (Rogers et al., 2022).

Community-based development theory emphasizes participatory approaches in empowering communities. In livestock assistance programs, community involvement in planning, implementation, and evaluation increases program relevance and sustainability. Participatory development strengthens community ownership and ensures that interventions align with local needs (Mansuri & Rao, 2021).

Capacity development theory highlights the importance of strengthening individual skills, organizational structures, and institutional systems. In the context of livestock enterprises, capacity development through training and mentoring improves farmers' managerial and technical competencies. This approach enables farmers to manage livestock businesses independently and sustainably (UNDP, 2023).

Value chain management theory emphasizes the importance of managing all stages of production, processing, and distribution to increase business efficiency and value creation. In livestock enterprises, effective value chain management helps farmers reduce losses, improve product quality, and strengthen market access. This approach supports sustainable income generation and enhances the contribution of livestock businesses to food security (FAO & IFAD, 2022).

Risk management theory explains that agricultural businesses are highly vulnerable to production, market, and environmental risks. In livestock farming, risks such as disease outbreaks, feed price fluctuations, and climate variability can significantly affect business

performance. Implementing risk management strategies enables farmers to anticipate potential threats and minimize losses, thereby improving business resilience (OECD, 2023).

Digital agriculture theory highlights the role of digital tools and information systems in improving agricultural productivity and management efficiency. In the livestock sector, digital record-keeping, monitoring systems, and market information platforms support better decision-making and transparency. The adoption of digital solutions contributes to more efficient and sustainable livestock business management (World Economic Forum, 2022).

Institutional theory emphasizes the role of institutions, regulations, and organizational structures in shaping business behavior. In livestock enterprises, institutional support such as farmer groups, cooperatives, and government policies influences management practices and business sustainability. Strengthening institutional capacity helps smallholder farmers access resources, knowledge, and markets more effectively (North, 2021).

Social capital theory explains that networks, trust, and cooperation among community members play a crucial role in business development. In livestock farming communities, strong social capital facilitates knowledge sharing, collective action, and mutual support. Social capital enhances the effectiveness of community-based assistance programs and supports sustainable livestock business growth (Putnam, 2021).

Climate-smart livestock theory integrates climate adaptation, mitigation, and productivity improvement in livestock management. This approach encourages practices that reduce greenhouse gas emissions while maintaining or increasing production levels. Climate-smart livestock management supports sustainability and strengthens the resilience of livestock enterprises to climate change impacts (FAO, 2023).

Human capital theory highlights the importance of education, skills, and experience in improving productivity and business performance. In livestock enterprises, strengthening farmers' human capital through training and mentoring enhances managerial capacity and technical competence. Improved human capital contributes directly to sustainable business development and food security outcomes (Becker, 2022).

METHOD

This community service program employed a participatory and mentoring-based approach to improve sustainable livestock business management among smallholder farmers. The program was conducted at a livestock farming area located in Juli Km 7 and involved livestock farmers as active participants throughout all stages of the activity. A participatory approach was selected to ensure that the program addressed real needs and encouraged farmer ownership of the intervention process (Pretty, 2021).

The first stage of the program was a preliminary assessment aimed at identifying the existing conditions, challenges, and needs of livestock farmers. This stage was carried out through field observations, informal interviews, and group discussions with farmers. The assessment focused on current livestock management practices, production systems, and business-related constraints experienced by farmers.

The second stage involved the implementation of training activities focused on livestock business management. Training materials included basic management concepts, simple financial record-keeping, production planning, and principles of sustainable livestock management. The training sessions were delivered through interactive discussions, case examples, and practical explanations to facilitate participants' understanding.

The third stage consisted of direct mentoring and assistance provided to farmers during their daily livestock management activities. Mentoring emphasized the practical application of management concepts, such as bookkeeping, cost calculation, and production scheduling. Continuous guidance was provided to help farmers apply new practices according to their specific conditions.

The fourth stage was monitoring and evaluation, which aimed to assess the effectiveness of the program and observe changes in farmers' knowledge, skills, and management practices. Evaluation activities included direct observation, feedback sessions with farmers, and comparison of conditions before and after the program implementation.

The final stage focused on program sustainability by encouraging farmers to independently continue applying the livestock business management practices that had been introduced. Follow up discussions and recommendations were provided to strengthen farmers' commitment to sustainable business management and long-term improvement of their livestock enterprises.

RESULTS AND DISCUSSION

The community service program on sustainable livestock business management was successfully implemented at a livestock farming area in Juli Km 7. The activity involved lecturers and students from the fields of management and animal husbandry, as well as local livestock farmers as program partners. The implementation process emphasized participatory interaction, where farmers actively engaged in discussions, training sessions, and mentoring activities related to livestock business management.

The results of the program showed an improvement in farmers' understanding of basic livestock business management concepts, particularly in production planning, simple financial record-keeping, and the importance of sustainability in livestock enterprises. During the training and mentoring sessions, farmers demonstrated increased awareness of how proper management practices can support business efficiency and long-term continuity. This improvement was evident from farmers' active participation in discussions and their ability to explain management practices applied to their daily livestock activities.

The mentoring activities also resulted in increased interaction and communication between farmers and the academic team. Farmers were more open in sharing the problems they faced in managing livestock businesses, such as feed cost management, production efficiency, and market uncertainty. This interactive process enabled the mentoring team to provide contextual solutions tailored to the actual conditions of livestock farming in Juli Km 7.

In addition, the program strengthened collaboration between the academic community and local livestock farmers. As shown in **Figure 1**, lecturers, students, and farmers jointly participated in the community service activity at the livestock farming site. This collaboration created a



positive learning environment and facilitated effective knowledge transfer from the academic team to the community.



Figure 1. Community service activities on sustainable livestock business management involving lecturers, students, and livestock farmers at the livestock farming area in Juli Km 7. Another important outcome of the program was the improvement of farmers' confidence in managing their livestock enterprises. Through direct guidance and hands-on discussions, farmers gained practical insights into organizing daily operations and monitoring business performance. This increased confidence is considered a key factor in encouraging farmers to consistently apply better management practices.

The involvement of students in the community service activities also provided added value to the program. Students assisted farmers during mentoring sessions and supported communication between farmers and lecturers. This collaboration not only enhanced the effectiveness of the mentoring process but also enriched students' learning experiences by exposing them to real-world livestock business management practices.

Moreover, the implementation of the program fostered a sense of collective responsibility among participants. Farmers recognized the importance of collaboration and experience sharing in improving livestock business sustainability. This collective awareness is expected to support the continuity of good management practices even after the completion of the community service program.

To provide a clearer overview of the outcomes achieved through the community service program, the results of the mentoring activities are summarized in Table 1. The table presents key aspects of livestock business management before and after the implementation of the program at the livestock farming area in Juli Km 7.

Table 1. Changes in Livestock Business Management Conditions Before and After the Community Service Program

No.	Aspect Evaluated	Before the Program	After the Program
1.	Understanding of livestock business management	Limited understanding of basic management concepts	Improved understanding of planning, management, and sustainability
2.	Financial record-keeping	No systematic bookkeeping practices	Farmers began applying simple financial records

3.	Production planning	Production decisions based on routine habits	More structured production planning
4.	Awareness of sustainability	Low awareness of sustainable practices	Increased awareness of sustainable livestock management
5.	Farmer participation	Passive participation	Active involvement in discussions and mentoring
6.	Confidence in business management	Low confidence in managing livestock enterprises	Increased confidence in decision-making and management
7.	Collaboration with academic team	Limited interaction	Strong collaboration between farmers, lecturers, and students

Overall, the results indicate that the mentoring-based assistance program had a comprehensive impact on farmers’ knowledge, skills, attitudes, and confidence. These outcomes demonstrate that sustainable livestock business management assistance can effectively strengthen smallholder livestock enterprises and contribute to efforts to enhance national food security.

DISCUSSION

The results of this community service program indicate that mentoring-based assistance in livestock business management can effectively improve farmers’ managerial understanding and practices. The increased awareness of production planning and simple financial record-keeping observed among farmers aligns with the concept that managerial capacity is a key factor in improving the performance and sustainability of smallholder livestock enterprises. Strengthened management practices enable farmers to make more informed decisions and improve business efficiency (World Bank, 2021).

The improvement in farmers’ confidence and active participation during the program reflects the effectiveness of participatory and empowerment-based approaches. When farmers are involved as active participants rather than passive recipients, they are more likely to understand, accept, and apply new knowledge. This finding supports the view that community-based and participatory development approaches enhance the relevance and sustainability of community service programs (Mansuri & Rao, 2021).

The collaboration between lecturers, students, and livestock farmers, as documented in the program activities, played an important role in facilitating knowledge transfer. The presence of students not only supported the mentoring process but also strengthened experiential learning and social interaction. This collaborative model is consistent with the concept of community–university engagement, which emphasizes mutual learning and shared responsibility in addressing local development challenges (UNESCO, 2023).

The observed changes in farmers’ attitudes toward sustainable livestock management highlight the importance of integrating sustainability principles into business management assistance. Increased awareness of sustainability encourages farmers to consider long-term impacts rather than focusing solely on short-term production outcomes. This finding supports the theory that

sustainable livestock management contributes to both economic resilience and environmental responsibility (OECD, 2021).

Furthermore, the development of collective awareness and collaboration among farmers indicates the emergence of social capital within the community. Strong social interaction and cooperation facilitate information exchange and collective problem-solving, which are essential for sustaining improvements beyond the duration of the program. Social capital has been widely recognized as a critical element in strengthening rural development initiatives and smallholder enterprise sustainability (Putnam, 2021).

Overall, the discussion of these findings confirms that mentoring-based livestock business management assistance is an effective strategy for strengthening smallholder livestock enterprises. By improving managerial skills, confidence, collaboration, and sustainability awareness, the program contributes meaningfully to efforts aimed at enhancing livestock-based livelihoods and supporting national food security objectives (HLPE, 2021).

CONCLUSION

This community service program demonstrates that mentoring-based assistance in sustainable livestock business management can effectively enhance the managerial capacity of smallholder livestock farmers. The program conducted at the livestock farming area in Juli Km 7 successfully improved farmers' understanding of basic management concepts, including production planning, simple financial record-keeping, and sustainability principles. The results also indicate positive changes in farmers' attitudes, confidence, and participation in managing their livestock enterprises. Through participatory training and continuous mentoring, farmers became more actively involved in decision-making processes and showed greater awareness of the importance of sustainable business practices. Collaboration between lecturers, students, and farmers further strengthened the effectiveness of the program.

SUGGESTIONS

Based on the results of this community service program, it is recommended that mentoring-based assistance in livestock business management be continued and expanded to reach a wider group of smallholder livestock farmers. Continuous mentoring is essential to ensure the consistent application of management practices and to strengthen long-term business sustainability. Future community service programs should place greater emphasis on practical training, particularly in financial record-keeping, cost analysis, and production planning. Integrating simple digital tools for livestock management may also enhance efficiency and support better decision-making among farmers. In addition, collaboration between universities, local governments, and farmer groups should be strengthened to support program sustainability. Such collaboration can facilitate access to resources, policy support, and market opportunities, thereby maximizing the impact of livestock business management assistance on food security and rural development.

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