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The Agricultural Extension Officer's Qualification and Role in Farmers' Groups Receiving Government Assistances in Padang City, West Sumatra

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ABSTRACT

The study was conducted to identify the qualifications and describe the roles of Agricultural Extension Officers in livestock farmer groups receiving government assistance in Padang City, West Sumatra. The study employed a rigorous survey approach, supported by a questionnaire and field observations, to gather data. The focus was on farmer groups benefiting from government support. A purposive sample was determined to consist of 6 livestock groups: 2 cattle farmer groups, 2 goat farmer groups, and 2 poultry farmer groups. Data were analysed and presented in a statistical descriptive quantitative format. The results indicated that the communication skills of extension agents were categorised as moderate, while their attitudes, knowledge, and adaptability were rated as good. Extension officers were found to play effective roles in education, facilitation, supervision, and evaluation, although their roles in dissemination, consultation, and advocacy were moderate. In conclusion, Agricultural Extension Officers were determined to have suitable qualifications and roles in conducting extension services within government-assisted livestock farmer groups in Padang City, West Sumatra.

INTRODUCTION

Agricultural Extension Officers are vital to improving the productivity and sustainability of farmer groups benefiting from Government assistance. Their qualifications—comprising technical expertise, strong communication skills, and the capability to implement effective extension methodologies—significantly impact the success of knowledge transfer and the adoption of improved livestock management practices. Nevertheless, despite Government efforts, challenges such as disease outbreaks, lack of infrastructure, and limited access to markets continue to hinder substantial advancements in livestock population growth and farmer productivity in Padang City, West Sumatra.

Between 2020 and 2022, Padang City witnessed a decline in its livestock population. In contrast, there was a slight increase of 0.01% in 2023 in beef cattle, dairy, and goat farming. This growth is still inadequate to achieve the government's goals for self-sufficiency in animal-based food production, and it also implies limits in job creation in the livestock sector. It happened as stagnant livestock population growth corresponds to a lack of increase in the number of livestock-rearing households. In this context, the roles and qualifications of Agricultural Extension Officers become crucial in understanding and addressing the factors contributing to the decline in the livestock population.

This development gap within the livestock sector may be influenced by several factors, particularly the effectiveness of Extension Officers in assisting livestock farmers. Although the Padang City Government supported 21 livestock groups in 2023 through financial aid, livestock, facilities, and extension programs, the impact of this assistance still needs to be improved. Previous studies stated that government assistance, the business environment, and farmers' experience significantly affect the development of livestock enterprises [1]. This suggests potential constraints in the quality and implementation of extension activities, which are crucial for enhancing farmers' skills and practices in livestock maintenance. Ineffective extension services hinder farmers from adopting the innovation, technologies and modern livestock management techniques.

Padang City has 39 Agricultural Extension Officers who operate in multiple areas. The adequacy of these extensions depends on the Extension Officer's ability to design and implement the program in accordance with farmers' needs. If they lack adequate qualifications and fail to fulfil their roles at various stages of extension activities, their impact on farmer group performance may be minimal.

The growth of the livestock population in Padang City emphasises the significance of the programs carried out in agricultural extension [2]. It is essential to assess the qualifications and roles of extension officers in supporting groups of farmers who have received assistance from the government. This evaluation will help determine how effectively these officers can enhance the livestock businesses being developed by these farmers. As previous studies stated the crucial role of extension services in knowledge dissemination and behavioural change among farmers, there are still gaps in understanding how the competencies of Extension Officers translate into tangible improvements in livestock farming outcomes [3][4].

The effectiveness of extension programs is crucial to achieving the government's objective of fostering more self-sufficient and productive local livestock enterprises. Additionally, this research aims to provide recommendations to enhance extension agents' performance, aligning their efforts more closely with field conditions and needs, thus potentially accelerating livestock population growth in the region. This study seeks to identify the qualifications of Extension Officers and analyse their roles within livestock groups receiving government assistance in Padang City, West Sumatra Province. By understanding extension officers' qualifications and the roles they perform, this research aims to offer insights that can help the government improve extension program effectiveness, ultimately supporting sustainable growth within the livestock sector.

RESEARCH METHODS

Research Approach

The survey was used as an approach in this study. This is a methodology that uses interviews or standardised questionnaires to systematically gather information about people's preferences, beliefs, and actions. The survey method can be used for descriptive, exploratory, or explanatory research. This method is best suited for studies with individual people as the unit of analysis [5].

Population and Sampling Method

The research population comprised 21 farmer groups in Padang City that received government aid in 2023 and participated in agricultural extension programs. A quota sampling technique was used to ensure representation across different subdistricts, capturing variations in geographic, economic, and operational conditions. Six farmer groups from three subdistricts were selected based on their participation in government assistance and extension activities. This method was chosen to provide a structured yet flexible selection process that reflects the diversity of farmer groups. The study involved management representatives from these groups, as they directly engaged in extension programs and could provide valuable insights into the role and effectiveness of Agricultural Extension Officers.

Ethical Considerations

This study focused solely on measuring participants' perceptions without involving sensitive or invasive procedures. Participation was entirely voluntary, and respondents provided verbal or written informed consent after being informed about the purpose of the study. No personally identifiable information was collected to ensure confidentiality.

Data Collection

Primary data were collected using personal interviews with respondents (representatives of administrators of government assistance recipient groups) supported by field observations. The questionnaire was used to collect the primary data. Meanwhile, secondary data were collected using inventory data according to the needs of the Agriculture Service and the Padang City Agricultural Extension Centre.

Data Analysis

The data were analysed using descriptive statistics and a Likert scale to identify the qualifications and roles of Extension Officers. Through the Likert scale, variables will be measured and described through indicator variables [6]. The Likert scale used is 3 for an "agree" answer, 2 for a "not sure" answer, and 1 for a "disagree" answer. The data obtained were categorised into three categories (good, moderate, and bad) with the formula below [7]:

RESULTS AND DISCUSSION

Extension Officer's Qualifications

The result of the Extension Officers' qualification is shown in Table 1 below:

Table 1. Extension Officers' Qualification in Padang City

No	Extension Officer's Qualification Variables	Categories
1	Communication skill	Moderate
2	Attitude	Good
3	Knowledge	Good
4	Adaptation skill	Good
	Average	Good

Communication Skill

Effective communication is essential in agricultural extension, as it allows Extension Officers to share knowledge, foster trust, and understand the challenges faced by farmers [8]. However, research indicates that their communication skills are only moderate, which may hinder the effective transfer of knowledge and the adoption of innovations. While Extension Officers possess strong technical expertise, there is a need for improvement in their communication skills to facilitate better engagement with farmers [2]. Inadequate communication can lead to misunderstandings of extension messages, which may limit farmers' capacity to adopt new practices. Therefore, enhancing communication through training programs that emphasise participatory learning and interactive methods is crucial. Strengthening these skills can significantly boost technology adoption, improve government-supported farmer groups, and contribute to the growth of the livestock sector [9].

Attitude

The Extension Officers at the research location already have a good attitude. This is shown when farmers or farmer groups need help; Extension Officers are always willing to provide assistance and try their best to convince farmers about the superiority of the material, messages or innovations delivered. The responsive attitude of extension workers is an important element for the success of innovation

adoption. Extension Officers with a positive attitude towards innovation are more successful in helping farmers understand and accept new technology [10]. This attitude must always be maintained because commitment, loyalty and ongoing interaction between Extension Officers and farmers are needed for changes to occur in the farmer groups receiving assistance [11],[12].

Knowledge

Extension workers assisting government-assisted farmer groups generally have strong educational qualifications, with most holding a bachelor's degree. Formal education significantly influences their ability to provide effective extension services, as higher knowledge levels enhance their capacity to transfer relevant information and improve farmers' competencies, ultimately contributing to increased livestock production [13]. Moreover, well-educated Extension Officers can identify and promote innovations that best align with farmers' needs. This ability facilitates higher adoption rates of agricultural innovations [14]. However, knowledge alone is insufficient—effective communication and practical training are equally essential for ensuring that farmers apply the information in their daily practices. Strengthening continuous professional development programs for Extension Officers can enhance their knowledge application in the field. Additionally, integrating field-based learning and participatory extension methods can bridge the gap between knowledge and practical implementation, ensuring that farmers fully benefit from advisory services.

Adaptation Skill

The extension activities targeting livestock farmer groups have been practical because Extension Officers have been able to adapt and establish strong relationships with farmers. This ability to adjust to the socio-cultural conditions of the community is vital for the success of extension programs. As highlighted by previous studies, Extension Officers who lack this adaptability may encounter challenges that disrupt the continuity and effectiveness of their outreach efforts [15]. A deep understanding of the local socio-cultural context allows Extension Officers to engage more effectively, ensuring that extension messages are relevant and well-received. Extension Officers who align their strategies with the farmers' cultural practices are more likely to gain trust and foster cooperation, essential components of successful extension programs. Training programs should emphasise cultural sensitivity and socio-cultural awareness to enhance the effectiveness of Extension Officers. By ensuring that extension agents are well-versed in local cultures and traditions, they can build stronger connections with farmers and deliver more impactful, context-specific advice, ultimately improving livestock productivity in the region.

Extension Officer's Roles

The result of the Extension Officer's roles is shown in Table 2 below:

Table 2. Extension Officer's Role in Padang City

No	Extension Officer's Variables	Categories
1	Educator	Good
2	Disseminator	Moderate
3	Facilitator	Good
4	Consultant	Moderate
5	Advocate	Moderate
6	Supervisor	Good
7	Evaluator	Good
Average		Good

Educator

The educational role of Extension Officers is critical for the success of agricultural extension activities. The Extension Officers in this study have effectively positioned themselves as educators

within the farmer groups, enabling them to successfully transfer knowledge and skills. By presenting themselves as credible and approachable sources of information, they create an environment conducive to learning and engagement. This practical educational approach has been shown to directly contribute to the success of planned programs, as it enhances farmers' understanding of new practices and technologies [16]. However, despite this success, the effectiveness of Extension Officers as educators can be further improved. Ongoing training and knowledge updates are essential for Extension Officers to stay current with the latest agricultural innovations and educational techniques. Furthermore, integrating interactive and participatory teaching methods can foster deeper engagement and ensure that knowledge is retained and effectively applied by farmers.

Disseminator

The role of Extension Officers as disseminators has faced challenges, as they have been unable to visit all farmer groups regularly to provide consistent and intensive extension services. Due to the limited number of Extension Officers and the geographical spread of the farmer groups, the frequency and quality of visits have been compromised. As a result, some farmers have not received the necessary information and guidance to adopt new technologies and best practices. According to Law No. 19 of 2013 on the protection and empowerment of farmers, there should be at least one Extension Officer per village [17], yet another study highlights that the increasing number of farmer groups assigned to each Extension Officer has led to insufficient contact between farmers and extension agents [18]. Despite these constraints, improving the dissemination process is essential for enhancing the reach and impact of extension activities. A more efficient allocation of Extension Officers, paired with the use of modern communication tools such as digital platforms and group-based learning models, could help bridge this gap. Additionally, strengthening community-based dissemination networks could ensure that important information reaches farmers more effectively, even in remote areas.

Facilitator

Extension Officers have effectively fulfilled their role as facilitators, striving to provide critical support to livestock groups, particularly by delivering essential information on maintenance techniques and government policies and assistance. Access to this information is vital for improving farmers' practices and ensuring they can respond effectively to challenges in livestock farming. Extension Officers, therefore, must execute their role as liaisons proficiently, ensuring that information flows smoothly between farmers and relevant stakeholders. In addition to disseminating knowledge, Extension Officers foster key partnerships with the private sector, banks, and industries, facilitating greater access to capital, markets, and resources for farmers. This broadens the scope of their impact, helping farmers to overcome financial and logistical constraints. Furthermore, the role of the Extension Officer as a provider of facilities, a reliable source of information, and a conduit for innovation adoption plays a central role in bridging the gap between cutting-edge agricultural practices and the farmers who need them [19][20].

A previous study reinforces the notion that Extension Officers should not only act as facilitators of information but also assist in overcoming barriers to access and in building sustainable relationships between farmers and external stakeholders [21]. This demonstrates that facilitating access to resources and markets is essential to supporting farmers' long-term success. Similarly, another study confirms that facilitating collaborations between farmers and the private sector can have a significant impact on improving the sustainability of farming practices [22].

Consultant

In the context of Padang City, the limited number of Agricultural Extension Officers has hindered the effective implementation of their consulting role. Ideally, one extension officer should guide 6–8 farmer groups, as per the Indonesian Ministry of Agriculture [17]. However, with one officer overseeing more than 15 groups, personalized consultation becomes challenging. While efforts have been made to

provide consultation services through social media, this approach has not fully met farmers' needs due to limited access to smartphones and social media applications in the farming community.

To address these challenges, it's essential to explore alternative methods of delivering consultation services. Implementing e-extension systems, as suggested by Olagunju [23], could enhance the reach and effectiveness of agricultural consultations. Additionally, training para-Extension Officers within farmer groups and utilizing community radio for disseminating information could bridge the existing gaps. Establishing farmer help centres equipped with necessary resources and staffed by trained personnel can also provide farmers with timely and relevant guidance, ultimately improving livestock management practices and business sustainability. By adopting these strategies, the consulting role of Extension Officers can be strengthened, leading to better support for farmers and enhanced agricultural productivity in the region.

Advocate

The study results indicate that Extension Officers are not fully optimizing their advocacy role. As advocates, Extension Officers are expected to assist farmers in overcoming obstacles in their agricultural enterprises. Effective advocacy requires that extension activities originate from the actual challenges faced by farmer groups, ensuring alignment between the objectives of Extension Officers and the needs of the farmers. This collaborative approach facilitates the joint development of viable solutions. An Extension Officer's advocacy role involves ensuring that farmers' needs are addressed and that they are not adversely affected by policies, strategies, or projects. Advocacy ensures that individuals have their voices heard, their rights protected, and their perspectives considered in decision-making processes that impact their livelihoods. The role of advocacy involves providing assistance in policy formulation to favour the interests of the beneficiary community, including helping in the creation of regulations by farmer groups [24]. To enhance the advocacy role of Extension Officers, it is imperative to provide comprehensive training that focuses on participatory approaches and effective communication skills. By empowering Extension Officers to engage deeply with farmer groups, they can better understand and articulate the challenges farmers face, leading to more synchronized and effective extension activities. Additionally, fostering strong relationships between Extension Officers and policymakers can ensure that farmers' voices are represented in policy formulation, thereby safeguarding their interests and promoting sustainable agricultural development.

Supervisor

Supervision by Extension Officers in farmer groups receiving government assistance has been effective. This success is largely due to their ability to integrate supervision with other extension activities, allowing for continuous monitoring and guidance. Additionally, supervision is often conducted informally during available times, providing flexibility in assessing the progress of farmer groups. Effective supervision is critical in ensuring that government assistance programs achieve their intended impact, as it enables early detection of challenges and the implementation of corrective measures [25].

Supervision not only involves monitoring but also offering constructive feedback to farmers, aiding them in enhancing their agricultural practices and management skills. The effectiveness of supervision is closely linked to extension officers' interpersonal skills, commitment, and empathy towards farmers' challenges. Strengthening supervision mechanisms through structured follow-ups and periodic evaluations can enhance accountability and ensure that government assistance programs lead to tangible improvements in agricultural productivity. Moreover, adopting a participatory supervision approach—where farmers actively engage in self-assessment and goal-setting—can foster a sense of ownership and motivation towards the success of the programs [26].

Evaluator

Extension Officers play a pivotal role as evaluators, conducting systematic assessments of livestock groups receiving government assistance. Despite limited personnel, the Padang City Agriculture Service ensures these evaluations are performed professionally to measure program impact and identify areas for improvement. Effective evaluation involves documenting successes, challenges, and resource utilization in extension activities. This process enhances accountability and informs decision-making, leading to refined strategies that better address farmers' needs. Incorporating participatory evaluation, where farmers engage in assessing outcomes, fosters a sense of ownership and motivation toward program success. Strengthening evaluation frameworks with digital tools can further improve transparency and efficiency in extension services.

A recent study emphasizes that participatory extension approaches, which actively involve farmers in the evaluation process, empower them and enhance the relevance of agricultural interventions [27]. Additionally, another research highlights that digital agricultural extension services have the potential to enhance accessibility, delivery, transparency, and the impact of information and services for smallholder farmers [28]. By adopting these approaches, Extension Officers can enhance the impact of government assistance programs, ensuring they are responsive to the evolving needs of the agricultural community.

CONCLUSION

Extension Officers in Padang City, West Sumatra, have strong qualifications and effectively support farmer groups receiving government assistance. To enhance their impact, it is recommended to improve training in digital communication, participatory supervision, and advocacy. Strengthening collaborations with private stakeholders and financial institutions can also improve farmers' access to resources and markets. Government programs should prioritize adequate staffing of Extension Officers and implement structured evaluations to tailor services to farmers' needs. Future research should explore farmers' motivations for adopting innovations to inform more targeted policies for livestock population growth in Padang City.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

AUTHOR CONTRIBUTIONS

Amrizal Anas contributed as the main author, giving advice and mind mapping for this research. Aditya Alqamal Alianta contributed as author, translator, and editor. Ediset contributed as a data collector and arranged the Bahasa Indonesia manuscript. All authors agreed to the final version of this manuscript.

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