

Analysis of the Role of Agricultural Extension Workers in the Development of Farmer Groups

Sabirin¹, Novita Aswan², Anugrah Sri Widiasyih^{3*}
Universitas Graha Nusantara Padangsidempuan
Corresponding Author: Anugrah Sri Widiasyih;
anugrahsriwidiasyih@gmail.com

ARTICLE INFO

Keywords: Extension Role, Farmer Groups, Agricultural Extension

Received : 5 January

Revised : 23 February

Accepted: 23 March

©2026 Sabirin, Aswan, Widiasyih: This is an open-access article distributed under the terms of the [Creative Commons Attribution 4.0 International](https://creativecommons.org/licenses/by/4.0/).



ABSTRACT

This study aims to analyze the role of agricultural extension workers in the development of farmer groups in Hatupangan Village, Batang Natal District, Mandailing Natal Regency. The research employed a descriptive method with a quantitative approach. The study location was determined purposively. The population consisted of farmers who were members of farmer groups, with the sample determined using an appropriate sampling technique. Data collection techniques included interviews, observations, and questionnaires, while data analysis was conducted using a Likert scale. The results indicate that the role of agricultural extension workers is generally categorized as important to very important. Their roles as educators, organizers/dynamizers, and facilitators are classified as very important, while their role as motivators is considered moderately important. Extension workers have been able to provide guidance, strengthen farmer group institutions, and facilitate farmers' access to information and resources. However, improvements are still needed in terms of motivation and problem-solving assistance. Therefore, enhancing the capacity of extension workers and increasing the intensity of assistance are essential to support farmers' independence and welfare

INTRODUCTION

The agricultural sector plays a strategic role in economic growth and food security in Indonesia, as the majority of economic activity and workforce still depend on it. However, agricultural development still faces various challenges such as climate change, land conversion, and limited resources and technology (Dewi et al., 2015). Food security can be achieved through the utilization of local resources, economic efficiency, and improved food quality and diversification (Hanafie, 2010).

Economic growth is a crucial indicator in assessing the success of a region's development, characterized by increased production of goods and services and community welfare (Amri, 2007; Nuraini, 2017). On the other hand, high population growth can lead to employment issues, especially when not matched by job availability (Arifin, 2011; Azizah, 2016). Therefore, community empowerment and self-reliance are crucial aspects of development, including in the agricultural sector (Widjajanti, 2011).

LITERATURE REVIEW

The agricultural sector makes a significant contribution to the national economy, with approximately 29.59% of the workforce employed in this sector (BPS, 2021). Developing the agricultural sector requires an integrated agribusiness approach and institutional support, such as farmer groups (Asmarantaka et al., 2017). In this regard, the role of agricultural extension workers is crucial as agents of change, helping to improve the knowledge, skills, and behavior of farmers, making them more modern and independent (Kartasapoetra, 1994; Suhardiyono, 1990).

However, in practice, various obstacles remain, such as low farmer participation, limited infrastructure, low-quality human resources, and suboptimal relationships between extension workers and farmers (Nainggolan, 2014; Safitri, 2022). A similar situation exists in Hatupangan Village, Mandailing Natal Regency, where the majority of the population works as farmers but faces limitations in farmer group participation, capital, facilities, and productivity. Based on these problems, this study was conducted to analyze the role of agricultural extension on the development of farmer groups in Batang Natal District, Mandailing Natal Regency.

METHODOLOGY

This research was conducted in Hatupangan Village, Batang Natal District, Mandailing Natal Regency. The location was selected purposively, considering the area's location.

The population in this study was 27 members of the Maju Bersama farmer group, 30 members of Maju Bersama I, and 25 members of Maju Bersama II, for a total population of 82. The Slovin formula was used to determine the minimum sample size, resulting in a total of 45 respondents (Umar, 2002). The sampling technique used was purposive sampling, based on specific considerations by the researcher to align with the research objectives (Rozaini, 2003). Furthermore, the sample size was distributed proportionally among each farmer group (Sugiarto, 2003).

The data used consisted of primary and secondary data. Primary data were obtained through interviews using a structured questionnaire, direct field observation, and documentation (Daniel, 2002; Adimiharja & Hikmat, 2001; Hasan, 2002). Meanwhile, secondary data was obtained from various sources such as literature, journals, and related documents (Sugiyono, 2015).

The data analysis methods used were qualitative descriptive analysis and descriptive statistics, which describe and summarize conditions based on data obtained in the field (Winartha, 2006; Sugiyono, 2012). To measure respondents' perceptions, a Likert scale was used, classifying answers into low, medium, and high categories (Kriyantono, 2006). The data was then processed using a scoring method to obtain an average value that reflects respondents' level of assessment of the research variables (Zubaidah, 2011).

RESULTS AND DISCUSSION

Research Location Overview

Hatupangan Village is a village in the southern region of Mandailing Natal with significant agricultural and plantation potential, supported by its geographical conditions of fertile hills and rivers. The majority of Hatupangan Village residents are farmers and gardeners, cultivating rice, rubber, coffee, and horticultural crops. The agricultural system remains predominantly traditional, but has begun to transform with the introduction of various agricultural extension programs and assistance from the regional and central governments. The village also has an active farmer group, which plays a key role in coordinating agricultural activities, training, and technical assistance from extension workers. In terms of infrastructure, Hatupangan Village still faces challenges in road access and transportation, particularly during the rainy season. However, the presence of the Agricultural Extension Center (BPP) and support from the local government have contributed to increasing farmer knowledge and capacity.

Hatupangan Village was selected as the research location because it is considered representative of the agricultural conditions in developing rural areas and serves as a location for implementing empowerment programs such as agricultural extension, training, and sustainable utilization of local resources. Furthermore, community involvement in agribusiness activities is also a key factor in analyzing the effectiveness of community-based agricultural programs.

The Role of Agricultural Extension Workers in Hatupangan Village

Agricultural extension workers in Hatupangan Village play a strategic role in supporting agricultural sector development and improving farmer welfare. As the spearhead of agricultural policy implementation at the village level, extension workers are responsible for bridging the transfer of knowledge, technology, and government policies to farmers. In the context of Hatupangan Village, extension workers act as educators, facilitators, motivators, and dynamic agents for farmer groups and the wider farming community.

As educators, extension workers actively provide technical guidance to farmers on land management, selection of superior varieties, balanced fertilization, and pest and disease control. These activities are carried out through

group extension sessions and individual field visits (farm visits). In their role as facilitators, extension workers help farmers access various government assistance such as seeds, subsidized fertilizers, and agricultural machinery (alsintan), as well as facilitate the formation and strengthening of farmer groups as the foundation for farmer organizations. Extension workers also act as motivators, encouraging and encouraging farmers to implement agricultural innovations and build independent farming businesses. This is crucial, given that most farmers in Hatupangan Village still use traditional planting methods and have limited access to information. Furthermore, extension workers act as dynamic agents, encouraging changes in farmer behavior toward more productive, efficient, and environmentally friendly agricultural systems.

The Role of Agricultural Extension Workers as Educators

The role of extension workers as educators is to enhance farmers' knowledge and skills in identifying problems they face, through mentoring and training farmers in technical skills such as seed distribution and pest and disease control. Extension workers provide a variety of information on the technical knowledge needed by farmers, including technology, provide input based on their knowledge and experience, and exchange ideas based on their knowledge and experience. Each extension worker is provided with basic extension training, including the development of an annual extension program. This training provides extension workers with the resources to incorporate farmer issues into their programs, based on priority scale, behavioral changes, knowledge levels, skills, and attitudes. Extension workers are provided with the opportunity to share agricultural knowledge tailored to the needs of their respective areas, and are also provided with training on farm diversification. The role of agricultural extension workers as educators is presented in the following table.

Table 1. The Role of Extension Workers as Educators

No	Peran penyuluh	Skor	Kategori
1	Penyuluh memberikan bimbingan kepada petani	2,44	Sangat berperan
2	Penyuluh memberikan informasi	2,36	Cukup berperan
3	Penyuluh memberi inovasi	2,18	Sangat berperan
	Total rata-rata	2,33	Sangat berperan

Based on the research results, the role of agricultural extension workers as educators in Hatupangan Village is classified as very important, with an average score of 2.33. This indicates that extension workers have effectively carried out their educational function by guiding and assisting farmers.

The highest indicator was found in farmer guidance activities (2.44), indicating that extension workers actively provide technical guidance and serve as a primary source of knowledge for farmers. Meanwhile, information dissemination scored 2.36 (fairly important), indicating that the intensity and reach of information still need to be improved. The indicator for providing

innovations scored 2.18 (very important), but its implementation still faces obstacles such as limited capital and traditional farming habits.

Overall, extension workers play a crucial role as educators, but improvements are needed in information dissemination, utilization of communication media, and support for innovation implementation to optimize their effectiveness in the field.

The Role of Agricultural Extension Workers as Organizers

In agricultural extension workers' roles as organizers, extension workers strive to establish good relationships with all levels of society, raise awareness and mobilize farmer participation, direct and foster activities, and develop institutions to implement planned changes. The role of extension workers as organizers and dynamists can be measured by indicators such as extension workers supervising and developing farmer groups, resolving conflicts within farmer groups, and increasing farmer participation within groups.

Table 2. The Role of Agricultural Extension Workers as Organizers and Dynamists

No	Peran penyuluh	Skor	Kategori
1	Penyuluh memberikan pengawasan dan pengembangan kelompok tani	2,51	Sangat berperan
2	Penyuluh mengatasi konflik dalam kelompok tani	2,58	Sangat berperan
3	Penyuluh mampu meningkatkan partisipasi petani dalam kelompok tani	2,49	Sangat berperan
	Total rata-rata	2,53	Sangat berperan

The research results show that the role of agricultural extension workers as organizers and dynamists in Hatupangan Village is classified as very influential, with an average score of 2.53. This indicates that extension workers have been effective in managing, developing, and mobilizing farmer groups. The highest indicator is the extension workers' ability to resolve group conflicts (2.58), indicating their crucial role in maintaining harmony and cooperation among members. Furthermore, supervision and development of farmer groups (2.51) and increasing farmer participation (2.49) also rank as very influential, although there are still opportunities for more optimal member involvement. Overall, extension workers have played an effective role in strengthening the institutions and dynamics of farmer groups, but improvements in mentoring, management training, and communication are needed to maintain group sustainability and solidarity.

The Role of Agricultural Extension Workers as Motivators

The role of agricultural extension workers as motivators is a crucial function in extension activities, namely encouraging, inspiring, and maintaining farmers' enthusiasm for making positive changes in their farming practices. According to Mardikanto (2009), motivation is a process that explains a person's intensity, direction, and persistence in achieving goals. In the context of agricultural extension, motivation provided by extension workers can help

farmers accept and implement innovations, increase productivity, and achieve agricultural independence. Furthermore, Van den Ban and Hawkins (1999) in their book, *Agricultural Extension*, explain that motivation provided by extension workers can be intrinsic (drives from within the farmer, such as the desire to improve their standard of living) or extrinsic (drives from outside, such as incentives, assistance, or social recognition). Effective extension workers are able to combine both types of motivation according to the social and cultural conditions of farmers. Thus, the role of extension workers as motivators is not limited to providing direction but also serves as a key driver in building farmers' mentality and commitment to continuous progress. This role is crucial for the success of extension programs, especially in areas where farmers have low levels of innovation adoption. The following is a more detailed explanation of the role of extension workers as motivators.

Table 3. The Role of Agricultural Extension Workers as Motivators

No	Peran Penyuluh	Skor	Kategori
1	Penyuluh melayani petani dalam kelompok tani	2,33	Sangat berperan
2	Penyuluh menjalankan tugasnya dan melakukan pendekatan langsung dengan petani	2,44	Sangat berperan
3	Penyuluh membantu petani dalam meghadapi masalah dalam kelompok tani	1,84	Cukup berperan
	Total rata-rata	2,21	Cukup berperan

The research results show that the role of agricultural extension workers as motivators in Hatupangan Village is categorized as moderately influential, with an average score of 2.21. This indicates that extension workers' efforts to provide support to farmers are in place, but not yet optimal. The highest indicators are direct approaches to farmers (2.44) and services to farmer groups (2.33), indicating that extension workers are quite active in building communication and providing services. However, the ability to assist farmers in facing problems received the lowest score (1.84), indicating that assistance in problem-solving still needs to be improved. Overall, the role of motivators is already effective, but needs to be strengthened, especially in the areas of assistance and problem-solving, to increase farmer motivation and impact farmer group productivity.

The Role of Agricultural Extension Workers as Facilitators

The role of agricultural extension workers as facilitators connects farmers with the various resources, information, technology, and opportunities needed to improve their productivity and well-being. According to Mardikanto (2009), facilitation is the process of helping communities or target groups identify problems, formulate plans, and implement activities by leveraging their existing potential and external support. In the context of agricultural extension, extension workers act as a link between farmers and relevant parties such as the

government, research institutions, financial institutions, markets, and input providers.

According to Van den Ban and Hawkins (1999) in Agricultural Extension, the role of facilitators has become increasingly important in the modern agricultural era because the problems faced by farmers are multidimensional, requiring collaboration between various parties. Extension workers not only convey information but also ensure farmers can access and utilize available resources.

Furthermore, Rogers (2003) in **Diffusion of Innovations** emphasized that the adoption of agricultural innovations will be faster and more effective if farmers are directly facilitated in terms of financing, inputs, and marketing. The role of facilitators here is to create a bridge between new knowledge and its application in the field. Thus, the role of agricultural extension workers as facilitators is crucial for creating an environment that supports innovation, increases productivity, and strengthens farmer institutions. Without an effective facilitation role, innovation delivery often fails to progress to the implementation stage due to access and resource constraints. The role of agricultural extension workers as facilitators is illustrated in the table below.

Table 4. The role of Agricultural Extension Workers as Facilitators

No	Peran Penyuluh	Skor	Kategori
1	Penyuluh memfasilitasi petani	2,47	Sangat berperan
2	Penyuluh mendampingi petani dalam kelompok tani	2,56	Sangat berperan
3	Penyuluh menjalin kerja sama dengan kelompok tani	2,49	Sangat berperan
	Total rata-rata	2,50	Sangat berperan

The research results show that the role of agricultural extension workers as facilitators in Hatupangan Village is classified as very influential, with an average score of 2.50. This indicates that extension workers have been effective in helping farmers access resources, increasing capacity, and strengthening farmer group institutions. The highest indicator was farmer group mentoring (2.56), indicating that extension workers are actively present and directly involved in farmer activities. Furthermore, their role in establishing cooperation (2.49) and facilitating farmer needs (2.47) was also classified as very positive, although there is room for improvement in terms of effectiveness and utilization of media and collaborative networks. Overall, extension workers have optimally played a facilitative role, but need to be strengthened through expanding partnerships, improving training, and utilizing information technology to maximize services to farmers.

Based on the research results, the general role of agricultural extension workers in Hatupangan Village, Batang Natal District, falls into the category of being influential to very influential in supporting farmer group development. This is evident in four main dimensions: educator, motivator, organizer/dynamist, and facilitator. The role of extension workers as educators is categorized as very influential, characterized by their ability to provide technical guidance, information, and introduce innovations to farmers. This aligns with Kartasapoetra's (1994) opinion, which states that extension workers function as agents of change, transferring knowledge and skills to farmers. Furthermore, Suhardiyono (1990) emphasized that extension workers aim to transform farmer behavior toward a more modern and productive direction. However, the dissemination of information and the implementation of innovations still require improvement to be more equitable and effective.

The role of extension workers as motivators is categorized as moderately influential. Extension workers have been able to build communication and rapport with farmers through direct approaches and group services. However, their role in helping farmers resolve problems remains relatively low. This situation indicates that farmer motivation is influenced not only by communication but also by the extension workers' ability to provide concrete solutions. According to Widjajanti (2011), community empowerment requires ongoing support to achieve independence, so the role of motivators needs to be strengthened through intensive mentoring.

Furthermore, the role of extension workers as organizers and dynamists is categorized as very influential. Extension workers are capable of managing farmer groups, increasing member participation, and resolving internal group conflicts. This aligns with Nainggolan's (2014) opinion, which states that the success of farmer groups is largely determined by the ability to maintain dynamics and cooperation among members. This role is crucial in building strong, independent, and sustainable farmer institutions.

The role of extension workers as facilitators is also crucial. Extension workers are able to assist farmers, establish collaborations with various parties, and facilitate access to resources and technology. This aligns with the concept of modern extension, which positions extension workers as liaisons between farmers and various sources of information and opportunities (Asmarantaka et al., 2017). However, the effectiveness of facilitation can be improved through the use of information technology and the expansion of partnership networks.

Overall, the research results indicate that agricultural extension workers in Hatupangan Village have performed their role quite optimally in supporting farmer group development. However, several aspects still need improvement, particularly in their role as motivators, in the dissemination of information, and in the implementation of innovations. Therefore, it is necessary to increase the capacity of extension workers through training, strengthening communication, and utilizing technology and collaborative networks so that the role of extension workers is more effective in promoting farmer independence and welfare.

CONCLUSIONS AND RECOMMENDATIONS

Based on research findings, the role of agricultural extension workers in Hatupangan Village, Batang Natal District, generally ranges from playing a role to being very instrumental in supporting the development of farmer groups. Their roles as educators, organizers/dynamists, and facilitators have been effectively implemented, particularly in providing guidance, strengthening institutions, and facilitating farmer access to resources and information.

However, their role as motivators remains suboptimal, particularly in helping farmers address challenges and fostering sustainable enthusiasm and participation. Therefore, capacity building for extension workers through training, enhanced communication, and intensified mentoring is needed to ensure that all extension workers' roles are more effective in improving farmer independence and well-being.

FURTHER STUDY

This research still has limitations, so it is necessary to conduct further research related to the topic of Analysis of the Role of Agricultural Extension Workers in the Development of Farmer Groups in order to perfect this research and increase insight for readers.

REFERENCES

- Amri, A. (2007). *Ekonomi pembangunan dan perencanaan*. Jakarta: Rajawali Pers.
- Arifin, B. (2011). *Ekonomi pembangunan pertanian*. Bogor: IPB Press.
- Asmarantaka, R. W., Atmakusuma, J., & Rosiana, N. (2017). *Agribisnis: Teori dan aplikasi*. Bogor: IPB Press.
- Azizah, S. (2016). *Ekonomi sumber daya manusia dan ketenagakerjaan*. Jakarta: Salemba Empat.
- Badan Pusat Statistik. (2021). *Statistik Indonesia 2021*. Jakarta: BPS.
- Dewi, N. K., Suryana, A., & Rachman, B. (2015). *Pembangunan pertanian berkelanjutan*. Jakarta: Kementerian Pertanian.
- Hanafie, R. (2010). *Pengantar ekonomi pertanian*. Yogyakarta: Andi Offset.
- Kartasapoetra, A. G. (1994). *Teknologi penyuluhan pertanian*. Jakarta: Bumi Aksara.
- Nainggolan, K. (2014). *Pengembangan kelembagaan pertanian*. Jakarta: Kementerian Pertanian.

- Nuraini, I. (2017). *Ekonomi pembangunan*. Malang: Universitas Negeri Malang Press.
- Safitri, D. (2022). *Peran penyuluh dalam pembangunan pertanian modern*. Yogyakarta: Deepublish.
- Suhardiyono. (1990). *Penyuluhan petunjuk bagi penyuluh pertanian*. Jakarta: Erlangga.
- Widjajanti, K. (2011). *Model pemberdayaan masyarakat*. Yogyakarta: Graha Ilmu.
- Yuniarti, E. (2022). *Peran penyuluh pertanian dalam meningkatkan kesejahteraan petani*. Bandung: Alfabeta.