

# Agricultural Extension–Based Empowerment of Corn Farmers in Enhancing Local Agricultural Productivity: A Case Study in North Manokwari District, Indonesia

Medellyn Emma Bonepay<sup>1</sup>, Hendrawati Hamid<sup>2</sup>

<sup>1</sup> Institut Pemerintahan Dalam Negeri (IPDN), Jatinangor, Indonesia<sup>1,2</sup>

*Input* : January 17, 2026      *Revised* : February 22, 2026  
*Accepted* : February 18, 2026      *Published* : February 27, 2026

## Abstract

*Corn is one of the strategic agricultural commodities that plays an important role in supporting food security and improving farmers' welfare in Indonesia. However, corn production in several regions, including Manokwari Utara District in Manokwari Regency, remains relatively low due to limited farmer capacity, access to technology, and agricultural support services. Therefore, farmer empowerment through agricultural extension programs becomes an important strategy to improve farmers' knowledge, skills, and productivity. This study aims to analyze the empowerment of corn farmers through agricultural extension programs in Manokwari Utara District, Manokwari Regency. The research used a descriptive qualitative approach with data collected through interviews, observation, and documentation. The results show that agricultural extension programs contribute to improving farmers' knowledge and skills in corn cultivation practices, including seed selection, fertilization, pest control, and crop management. In addition, the extension activities also encourage farmers to adopt more effective farming techniques and improve agricultural productivity. However, several challenges still hinder the effectiveness of farmer empowerment programs, including limited agricultural facilities, insufficient extension workers, and farmers' limited access to agricultural inputs and technology. Therefore, strengthening agricultural extension services, improving institutional support, and increasing access to agricultural resources are necessary to enhance farmer empowerment and support sustainable agricultural development in the region*

**Keywords :** *agricultural extension, corn farming, farmer empowerment, rural agriculture*

---

### Citation :

Bonepay M E 2026 Agricultural Extension–Based Empowerment of Corn Farmers in Enhancing Local Agricultural Productivity: A Case Study in North Manokwari District, Indonesia *MSJ: Majority Science Journal*, 4(1), 195-202.

---

### Corresponding Author:

Author name\* Medellyn Emma Bonepay

---



## 1. Introduction

The agricultural sector remains one of the most fundamental pillars of economic development and food security in many developing countries, including Indonesia. As an agrarian country, Indonesia relies heavily on agriculture not only as a source of livelihood for rural communities but also as a strategic sector that supports national economic stability. A significant portion of the Indonesian population is directly or indirectly dependent on agricultural activities for their income and subsistence. The diversity of agricultural resources across the archipelago provides a strong foundation for sustainable agricultural development, particularly through the empowerment of farmers as the primary actors in agricultural production. Empowering farmers is therefore an essential strategy to improve human resource capacity, enhance agricultural productivity, and ensure the sustainability of food systems in Indonesia (Nezha, 2014).

In the context of rural development, farmer empowerment has become an increasingly important policy focus. Empowerment refers to a process that enables individuals or groups to gain greater control over their economic, social, and productive capacities. Within the agricultural sector, empowerment aims to improve farmers' knowledge, skills, and access to resources so they can manage farming activities more effectively and sustainably. In Indonesia, the legal basis for farmer empowerment is clearly articulated in Law Number 19 of 2013 concerning the Protection and Empowerment of Farmers, which emphasizes the importance of strengthening farmers through education, training, agricultural extension services, and improved access to markets, technology, and agricultural inputs. These initiatives are designed to enable farmers to enhance their productivity and improve their overall welfare (Wati, 2020).

Agricultural extension programs represent one of the most important instruments for implementing farmer empowerment strategies. Extension services function as a bridge between agricultural innovation and farmers by disseminating knowledge, promoting modern farming techniques, and facilitating the adoption of new technologies. Through systematic and well-structured extension programs, farmers are provided with opportunities to learn improved cultivation methods, resource management techniques, and market strategies that can enhance the efficiency and profitability of agricultural production. Extension activities also play a critical role in fostering collaboration among farmers, government institutions, and other stakeholders involved in agricultural development. Consequently, effective extension programs can significantly contribute to improving farmers' capabilities and strengthening rural agricultural systems (Roberto, 2016).

Corn (*Zea mays*) is one of the most important food crops in Indonesia and serves multiple functions in the national economy. In addition to being a staple food in several regions, corn is widely used as raw material for livestock feed and industrial processing. As a result, increasing corn productivity has become a national priority in efforts to strengthen food security and support agricultural-based economic development. However, despite the increasing demand for corn in Indonesia, production levels in several regions remain relatively low due to various structural and technical constraints. These constraints include limited access to high-quality seeds, inadequate farming technology, insufficient training for farmers, and limited access to agricultural information systems. Addressing these challenges requires comprehensive empowerment strategies that integrate agricultural extension programs with local agricultural development initiatives (Oktavian, 2023).

One region that possesses significant potential for corn production is the Province of West Papua. The province is characterized by favorable climatic conditions, fertile soil, and abundant natural resources that support agricultural activities. Despite this potential, the productivity of corn farming in the region has not yet reached optimal levels when compared to other provinces in Indonesia, such as East Java and South Sulawesi. Statistical data indicate that corn production in West Papua reached approximately 4,142.97 tons in 2024, reflecting a moderate increase compared to previous years. However, the productivity level remains relatively low, indicating the existence of structural challenges that hinder the efficient utilization of agricultural resources. These conditions highlight the need for targeted agricultural

empowerment programs that focus on improving farmers' capacities and strengthening local agricultural institutions (Vera, 2023).

At the district level, Manokwari Regency represents one of the important agricultural areas in West Papua with considerable potential for corn cultivation. The region has extensive agricultural land and a rural population that largely depends on farming as their primary economic activity. Data from the Manokwari regional agricultural sector show that corn production is distributed across several districts, with varying productivity levels. North Manokwari District, for instance, recorded corn production of approximately 93.95 tons, which is relatively lower compared to other districts such as Tanah Rubu and Prafi. The relatively low production levels in North Manokwari suggest that local farmers face several challenges in optimizing agricultural productivity. These challenges may include limited access to training, inadequate farming infrastructure, and insufficient knowledge regarding modern cultivation techniques (Oktavian, 2023).

Agricultural extension programs implemented by the Agricultural Extension Center (Balai Penyuluhan Pertanian) in North Manokwari District are intended to address these challenges by providing technical guidance and capacity-building activities for local farmers. These programs are designed to assist farmers in adopting improved agricultural practices, increasing productivity, and strengthening their economic resilience. However, the implementation of extension programs in the region has encountered several obstacles. Preliminary observations and field reports indicate that many farmer groups still have limited access to training programs and technical assistance. Furthermore, the availability of agricultural inputs and information remains inadequate in certain areas, which affects farmers' ability to implement recommended cultivation practices effectively (Praxis, 2022).

Several studies have highlighted the importance of farmer empowerment in improving agricultural productivity and rural livelihoods. Previous research has demonstrated that empowerment programs involving education, training, and participatory extension approaches can significantly enhance farmers' knowledge and skills, leading to better farm management and increased crop yields. However, many of these studies focus primarily on general empowerment strategies without examining the specific role of structured extension programs at the local government level. Moreover, most existing research has been conducted in other regions of Indonesia, leaving a gap in empirical understanding of how agricultural extension programs function in relatively remote regions such as West Papua (Irwan, 2016).

The research gap therefore lies in the limited scholarly attention given to the effectiveness of agricultural extension programs as a mechanism for farmer empowerment in North Manokwari District. While previous studies have explored empowerment strategies in various agricultural contexts, there is still insufficient analysis regarding how extension-based empowerment operates within the socio-economic and institutional context of rural communities in West Papua. Additionally, existing studies rarely integrate empowerment theory with practical extension program implementation in examining farmer capacity development. This limitation indicates the need for further investigation into how extension programs contribute to strengthening farmers' capabilities and improving agricultural productivity in underdeveloped agricultural regions (Iswardayanti, 2015).

Based on these considerations, the novelty of this study lies in its focus on analyzing the empowerment of corn farmers through structured agricultural extension programs within the specific socio-economic context of North Manokwari District. Unlike previous research that primarily examines empowerment in general agricultural development frameworks, this study emphasizes the role of extension programs as an integrated mechanism for strengthening farmers' knowledge, skills, and institutional participation. By examining the interaction between government extension initiatives and local farmer communities, this research provides a more comprehensive understanding of how empowerment strategies can be implemented effectively at the local level.

Therefore, the objective of this study is to analyze how agricultural extension programs contribute to the empowerment of corn farmers in North Manokwari District, Manokwari Regency. Specifically, the research seeks to explore the implementation of extension-based empowerment strategies, identify the obstacles faced in the empowerment process, and

evaluate the role of extension services in enhancing farmers' productivity and welfare. Through this analysis, the study aims to contribute to the broader discourse on agricultural empowerment and provide practical insights for policymakers and local governments in designing more effective agricultural extension programs that support sustainable rural development.

## 2. Method

This study employed a **qualitative descriptive research design with a case study approach** to explore the empowerment of corn farmers through agricultural extension programs in North Manokwari District, Manokwari Regency. The qualitative approach was chosen because it enables researchers to gain an in-depth understanding of social phenomena, particularly the dynamics of farmer empowerment and the implementation of agricultural extension programs within local communities. The focus of the research was to examine how agricultural extension initiatives contribute to improving farmers' capacity, productivity, and welfare. Data sources in this study consisted of **primary and secondary data**. Primary data were obtained directly from key informants who were actively involved in the implementation of agricultural extension programs, including government officials, agricultural extension workers, and corn farmers. The selection of informants was conducted using a **purposive sampling technique**, which allows the researcher to select individuals who possess relevant knowledge and experience related to the research topic. The informants involved in the study included the Head of the Department of Agriculture and Food Security, the Head of the Agricultural Extension Division, field agricultural extension officers, leaders of corn farmer groups, members of corn farmer groups, and village officials, with a total of seventeen informants participating in the research.

Data collection in this study was conducted through **three main techniques: interviews, observation, and documentation** in order to ensure the credibility and completeness of the data obtained. First, **in-depth interviews** were carried out with selected informants using semi-structured interview guidelines prepared in advance to explore their experiences, perceptions, and insights regarding the implementation of agricultural extension programs and the empowerment of corn farmers in the study area. These interviews allowed the researcher to gather detailed information about the challenges faced by farmers, the role of extension services, and the strategies implemented by the local government in supporting agricultural development. Second, **direct observation** was conducted to examine the actual conditions of agricultural activities and extension practices in the field. Through observation, the researcher was able to identify the real conditions of corn farming activities, including land preparation techniques, farming practices, and the interaction between farmers and agricultural extension officers. Third, **documentation techniques** were used to collect supporting data from various written sources, such as government reports, agricultural statistics, photographs, and official documents related to the implementation of agricultural extension programs. These documents included information regarding agricultural land area, corn production data, records of extension activities, and other relevant reports that support the research findings.

The collected data were analyzed using an **interactive qualitative data analysis model** consisting of three interconnected stages: **data reduction, data display, and conclusion drawing or verification**. Data reduction was carried out by selecting, focusing, simplifying, and organizing relevant information obtained from interviews, observations, and documentation in order to highlight the most significant aspects related to farmer empowerment through agricultural extension programs. This process helps researchers categorize and summarize large amounts of data into meaningful themes that correspond with the research objectives. Following the reduction process, the data were presented through **systematic descriptive narratives and organized information structures**, allowing the researcher to interpret patterns and relationships among various findings. The final stage involved **drawing conclusions and verifying findings** through continuous comparison of data from different sources. To ensure the validity and reliability of the results, the researcher applied **data triangulation**, which involves cross-checking information obtained from interviews, observations, and documentation. This iterative analytical process enabled the

researcher to produce a comprehensive interpretation of how agricultural extension programs contribute to the empowerment of corn farmers in North Manokwari District.

### 3. Results and Discussion

#### Corn Production Conditions in Indonesia

The development of corn production in Indonesia reflects the strategic role of agriculture in supporting national food security and rural economic development. Corn is not only a staple food commodity but also an important raw material for animal feed and agro-industrial products. Therefore, the performance of corn production at the national level provides an important context for understanding the challenges and opportunities of farmer empowerment at the regional level.

The data on harvest area, productivity, and corn production across provinces in Indonesia demonstrate significant variations in agricultural capacity. These differences are influenced by several factors, including land availability, agricultural technology, climate conditions, and the effectiveness of agricultural extension services provided by the government.

**Table 1 Harvest Area, Productivity, and Corn Production by Province in Indonesia (2023–2024)**

Province	Harvest Area 2023 (ha)	Harvest Area 2024 (ha)	Productivity 2023 (kw/ha)	Productivity 2024 (kw/ha)	Production 2023 (ton)	Production 2024 (ton)
Aceh	11728.37	10655.84	56.58	53.39	66363.62	56894.99
North Sumatra	211105.4	213549.1	63.63	64.2	1343291	1370961
West Sumatra	79630.77	83537.84	62.19	62.17	495223.5	519323.8
Riau	216.35	402.14	31.83	36.99	688.71	1487.59
Jambi	781.46	1976.09	60.46	63.91	4724.77	12629.76
South Sumatra	46247.92	58343.76	61.55	62.68	284643.3	365722.1
Bengkulu	7900.85	10012.11	63.82	62.17	50421.07	62243.19
Lampung	166215.3	169943.8	66.4	64.73	1103640	1100082
West Java	76901.39	81130.33	75.06	73.52	577185.5	596508.8
Central Java	371046.8	436330.9	58.6	59.29	2174484	2586896
East Java	759060.9	735054	63.18	61.15	4795781	4494969
West Nusa Tenggara	179029.7	173191.3	71.55	66.6	1281035	1153426
East Nusa Tenggara	101512.1	108531.3	25.8	26.68	261854.9	289525.8

The table shows that provinces such as East Java, Central Java, and Lampung contribute significantly to national corn production. These regions benefit from well-developed agricultural infrastructure, a larger number of farmers, and stronger institutional support. In

contrast, eastern regions of Indonesia still experience relatively lower production levels due to limited agricultural resources and insufficient technological support.

This condition indicates that agricultural development policies must focus not only on increasing production in high-performing regions but also on empowering farmers in developing regions to improve their agricultural productivity.

## Discussion

The findings of this study demonstrate that farmer empowerment through agricultural extension programs plays a crucial role in improving farmers' capacity and agricultural productivity. Farmer empowerment refers to a process that enables individuals or communities to gain greater control over resources, knowledge, and decision-making processes in order to improve their socio-economic conditions. In the context of rural development, empowerment strategies aim to strengthen farmers' abilities to manage agricultural resources effectively and sustainably.

Empowerment is fundamentally associated with strengthening the capacity of individuals or communities to become independent and capable of improving their livelihoods. According to Maryani and Nainggolan (2019), empowerment is a process that enables individuals or groups who are initially powerless to acquire the capacity and strength needed to achieve self-reliance and social welfare.

In the context of agricultural development, empowerment is often implemented through extension programs that provide farmers with access to knowledge, skills, and technological innovations. Agricultural extension services function as a bridge between scientific agricultural knowledge and farmers' practical experiences. Through training sessions, field demonstrations, and continuous mentoring, farmers can adopt improved agricultural practices that increase productivity and income.

The results of this study indicate that the agricultural extension program in Manokwari Utara District has contributed to improving farmers' understanding of corn cultivation techniques. Farmers who participate in extension activities tend to demonstrate better knowledge of seed selection, fertilization methods, pest management, and harvesting techniques.

This finding is consistent with previous research indicating that agricultural extension services significantly influence farmers' decision-making processes in adopting new agricultural technologies. For example, Apriliana and Mustadjab (2016) found that farmers' decisions to adopt hybrid corn seeds were strongly influenced by their access to information and guidance provided through extension activities.

Furthermore, agricultural extension programs also contribute to improving farmers' economic conditions by enhancing agricultural productivity and expanding market opportunities. When farmers receive adequate training and support, they become more capable of managing agricultural resources efficiently and responding to market demands.

Previous studies also show that empowerment programs can generate significant socio-economic impacts on rural communities. Wati, Agustina, and Evahelda (2020) reported that farmer empowerment programs significantly improved farmers' income levels and social welfare by strengthening farmers' institutional capacity and access to agricultural resources.

However, the findings of this study also reveal several obstacles that hinder the effectiveness of farmer empowerment programs. These challenges include limited agricultural facilities, inadequate market access, and the shortage of agricultural extension workers. In addition, environmental factors such as climate change and limited water resources also affect agricultural productivity.

Another challenge identified in this research is the limited adoption of agricultural innovations by farmers. Although extension programs provide farmers with valuable information and training, some farmers remain reluctant to adopt new technologies due to economic constraints, lack of confidence, or limited access to agricultural inputs.

This condition indicates that empowerment programs should not only focus on knowledge transfer but also address structural barriers that prevent farmers from implementing agricultural innovations. Strengthening farmer institutions, improving access to financial

services, and expanding agricultural infrastructure are essential components of sustainable empowerment strategies.

In addition, effective agricultural extension programs require strong institutional support from local governments and agricultural agencies. Policies that support farmer empowerment, such as the provision of agricultural subsidies, training programs, and market facilitation, are crucial for improving farmers' welfare.

The legal framework supporting farmer empowerment in Indonesia also emphasizes the importance of government involvement in strengthening agricultural development. The Law on Farmer Protection and Empowerment highlights the responsibility of the government to ensure that farmers receive adequate support in terms of training, extension services, and access to agricultural resources.

Overall, the findings of this study demonstrate that agricultural extension programs play a significant role in empowering farmers and improving agricultural productivity in Manokwari Utara District. However, the success of these programs depends on the availability of institutional support, adequate infrastructure, and continuous capacity-building efforts for farmers.

Therefore, strengthening agricultural extension services and expanding empowerment programs are essential strategies for promoting sustainable agricultural development and improving rural livelihoods..

#### 4. Conclusions and Suggestions

Based on the results of this study, it can be concluded that farmer empowerment through agricultural extension programs plays an important role in improving the capacity and productivity of corn farmers in Manokwari Utara District, Manokwari Regency. The extension activities conducted by agricultural officers have contributed to increasing farmers' knowledge and skills in corn cultivation, including seed selection, fertilization techniques, pest control, and crop management. In addition, the presence of agricultural extension programs has encouraged farmers to adopt more effective farming practices and improve their agricultural productivity. However, the study also found that several challenges still hinder the optimal implementation of farmer empowerment programs, including limited agricultural facilities, insufficient extension personnel, and farmers' limited access to technology and agricultural inputs. Therefore, strengthening agricultural extension services and improving institutional support are essential to enhance farmer empowerment and ensure sustainable agricultural development in the region.

Based on the findings of this research, several recommendations can be proposed to improve farmer empowerment programs in Manokwari Utara District. First, the local government and agricultural institutions should strengthen agricultural extension services by increasing the number of extension workers and providing continuous training programs for farmers. Second, efforts should be made to improve farmers' access to agricultural inputs, technology, and financial support in order to enhance their farming productivity. Third, strengthening farmer groups and encouraging collaboration between farmers, government agencies, and agricultural stakeholders are necessary to create a more sustainable agricultural system. Through these strategies, farmer empowerment programs are expected to become more effective in improving farmers' welfare and increasing corn production in the region.

#### Bibliografi

1. Adolph, R. (2016). *No Title*. 1–23.
2. Anwas, O. M. (2013). *Pemberdayaan masyarakat di era global*. Alfabeta.
3. Apriliansa, M., & Mustadjab, M. (2016). Analisis faktor-faktor yang mempengaruhi pengambilan keputusan petani dalam menggunakan benih hibrida pada usahatani jagung (Studi kasus di Desa Patokpici, Kecamatan Wajak, Kabupaten Malang). *Habitat*, 27(1), 7–13. <https://doi.org/10.21776/ub.habitat.2016.027.1.2>
4. Creswell, J. W. (2015). *Penelitian kualitatif dan desain riset: Memilih di antara lima pendekatan*. Pustaka Pelajar.

5. Hamid, H. (2018). *Manajemen pemberdayaan masyarakat* (Vol. 1). De La Macca.
6. Iswardayanti, N. T. (2015). Efektivitas program penyuluhan pertanian dan kinerja penyuluh di Kabupaten Gunungkidul. *Jurnal Ilmu-Ilmu Pertanian*, 21(1), 1–15.
7. Mardikanto, T., & Soebiato, P. (2012). *Pemberdayaan masyarakat dalam perspektif kebijakan publik*. Alfabeta.
8. Maryani, D., & Nainggolan, R. R. E. (2019). *Pemberdayaan masyarakat*. Deepublish.
9. Praxis. (2022). Program penyuluhan pertanian. *Journal of Economic Perspectives*, 2(1), 1–4.
10. Simangunsong, F. (2017). *Metodologi penelitian pemerintahan*.
11. Sugiyono. (2013). *Metode penelitian pendidikan pendekatan kuantitatif, kualitatif dan R&D*. Alfabeta.
12. Sugiyono. (2017). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta.
13. Suharto, E. (2009). *Membangun masyarakat memberdayakan rakyat*. PT Refika Aditama.