

**EMPOWERMENT OF FARMERS' GROUPS THROUGH THE JAJAR LEGOWO
PLANTING SYSTEM IN RICE FARMING IN SIRU VILLAGE, LEMBOR DISTRICT,
WEST MANGGARAI REGENCY**
(Pemberdayaan Kelompok Petani Melalui Sistem Tanaman Jajar Legowo Pada Pertanian
Padi Di Desa Siru Kecamatan Lembor Kabupaten Manggarai Barat)

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ABSTRACT

This research was carried out in Siru Village, Lembor District, West Manggarai Regency, which is one of the areas with the agricultural sector as the main livelihood of the community, especially in paddy rice farming. This village has considerable potential for agricultural development, but still faces various obstacles such as the low level of education of farmers, limited mastery of technology, and the still dominant use of traditional planting systems. Therefore, efforts to empower farmers through the application of technological innovations, one of which is the legowo row planting system, are needed to increase productivity and efficiency of farming. This study aims to: (1) find out the profile of paddy rice farming with a legowo row planting system, and (2) analyze the success rate of empowerment of the Want Jaya B farmer group through the implementation of the legowo row planting system which is reviewed from the aspects of human development, business development, environmental development, and institutional development in Siru Village, Lembor District, West Manggarai Regency. The results of the study show that paddy rice farming has implemented the legowo row planting system quite well, with an average production of $\pm 4,855$ tons/ha and a harvest period of twice a year. The overall success rate of farmer empowerment reached 90.23% which was included in the category of very much in line with expectations. In detail, the business development aspect has the highest value of 92.10%, which shows that farmers have been able to manage farming effectively. The environmental development aspect obtained a score of 94.35%, which means that farmers have applied environmental management principles very well. In the aspect of institutional development, farmer groups are in the advanced class with an average score of 3.93 or 91.36%, which shows that the group's institutions have run well.

Keywords: Empowerment, Farmer Groups, Row Legowo, Lowland Rice, Farming Business.

ABSTRAK

Penelitian ini dilaksanakan di Desa Siru, Kecamatan Lembor, Kabupaten Manggarai Barat, yang merupakan salah satu wilayah dengan sektor pertanian sebagai mata pencaharian utama masyarakat, khususnya pada usahatani padi sawah. Desa ini memiliki potensi pengembangan pertanian yang cukup besar, namun masih menghadapi berbagai kendala seperti rendahnya tingkat pendidikan petani, terbatasnya penguasaan teknologi, dan masih dominannya penggunaan sistem tanam tradisional. Oleh karena itu, upaya pemberdayaan petani melalui penerapan inovasi teknologi—salah satunya sistem tanam jajar legowo—diperlukan untuk meningkatkan produktivitas dan efisiensi usahatani. Penelitian ini bertujuan untuk: (1) mengetahui profil usahatani padi sawah dengan sistem tanam jajar legowo, dan (2) menganalisis tingkat keberhasilan pemberdayaan kelompok tani Want Jaya B melalui penerapan sistem tanam jajar legowo yang ditinjau dari aspek pengembangan sumber daya manusia, pengembangan usaha, pengembangan lingkungan, dan pengembangan kelembagaan di Desa Siru, Kecamatan Lembor, Kabupaten Manggarai Barat. Hasil penelitian menunjukkan bahwa usahatani padi sawah telah menerapkan sistem tanam jajar legowo dengan cukup baik, dengan rata-rata produksi $\pm 4,855$ ton/ha dan frekuensi panen dua kali setahun. Tingkat keberhasilan pemberdayaan petani secara keseluruhan mencapai 90,23%, yang termasuk dalam kategori sangat sesuai dengan harapan. Secara rinci, aspek pengembangan usaha memiliki nilai tertinggi sebesar 92,10%, yang menunjukkan bahwa

petani telah mampu mengelola usahatani secara efektif. Aspek pengembangan lingkungan memperoleh skor 94,35%, yang berarti petani telah menerapkan prinsip-prinsip pengelolaan lingkungan dengan sangat baik. Pada aspek pengembangan kelembagaan, kelompok tani berada pada kelas lanjut dengan skor rata-rata 3,93 atau 91,36%, yang menunjukkan bahwa kelembagaan kelompok telah berjalan dengan baik.

Kata kunci: pemberdayaan, kelompok tani, jajar legowo, padi sawah, usaha tani.

INTRODUCTION

The agricultural sector is a strategic sector that plays a vital role in national economic development, particularly in food supply, employment, and improving public welfare (Agribusiness & Satya, 2016). Rice is a key food crop essential for Indonesians as it serves as a staple food source (Dewi et al., 2023). Therefore, increasing lowland rice productivity continues to be a focus of national agricultural development (Prasetyo, nd).

The increase in population every year causes the need for food, especially rice, yield continues to increase (Zarliyanti et al., 2021). This condition encourages the government and farmers to implement various agricultural technology innovations to increase the productivity of rice farming. Suparwoto (Science & Education, 2024). One of the innovations that has been widely developed is the legowo planting system (Akbar et al., 2025). The legowo planting system is a rice cultivation method with a specific planting distance that provides empty space between rows of plants so that the plants receive more optimal sunlight, improve air circulation, and simplify plant maintenance (Muhariyantika et al., 2022).

Research (Purbata et al., nd) shows that the jajar legowo planting system can increase rice productivity by 5–10% and increase farmer income compared to conventional planting systems. Furthermore, Kaswati and Yuliawati (2019) explain that the Jajar Legowo planting system is more effective in increasing land use efficiency and rice yields compared to the tegel system (Sleman, 2022).

Siru Village, Lembor District, West Manggarai Regency, is a rice-growing region with significant agricultural potential. Most residents in the village rely on agriculture, particularly rice farming, for their livelihood. However, some farmers still use traditional planting patterns and do not fully understand the benefits of the Jajar Legowo planting system. The Want Jaya B Farmers Group is one of the farmer groups in Siru Village that has implemented the Jajar Legowo planting system in their rice cultivation. The implementation of this system is expected to increase productivity, land use efficiency, and farmers' ability to manage their rice farming.

This study aims to: (1) determine the profile of lowland rice farming with the jajar legowo planting system in Siru Village, Lembor District, West Manggarai Regency, and (2) analyze the level of success of empowering the Want Jaya B Farmers Group through the jajar legowo planting system from the perspective of human development, business development, environmental development, and institutional development.

METHODS

This research was conducted in December 2025 in Siru Village, Lembor District, West Manggarai Regency. The research location was determined purposively, considering that Siru Village is one of the rice production centers that has implemented the Jajar Legowo planting system in rice farming. Respondents in this study were rice farmers. The method for determining farmer samples was carried out using the saturated sampling method (census), namely all 35 members of the Want Jaya B Farmers Group were sampled, because it is the only farmer group that applies the Jajar Legowo planting system in rice farming. Data collected in study This is primary data and secondary data. Primary data collection was carried out with interview method, questionnaires and documentation, while secondary data was obtained from the Central Statistics Agency (BPS), journals, studies libraries, internet literature and various other sources related to this study.

For answer objective First namely know the profile of rice paddy farming by applying the plant row legowo system, using descriptive quantitative analysis.

For answer objective second that is to know the level of success empowerment in human development, business development, development environment, development institutions in groups

farmer wants to Jaya B in implementation system plant row easygoing with use descriptive qualitative analysis through skort from Likert scale.

1. Minimum score in percentage = $\frac{\text{skor minimum}}{\text{skor maksimum}} \times 100\%$

$$= \frac{1}{5} \times 100\%$$

$$= 20\%$$
2. Maximum score in percentage = $\frac{\text{skor maksimum}}{\text{skor maksimum}} \times 100\%$

$$= \frac{5}{5} \times 100\%$$

$$= 100\%$$
3. Interval in percentage = maximum score minimum score

$$= 100\% - 20\%$$

$$= 80\%$$
4. The length of the interval in percentage = $\frac{\text{interval}}{\text{jenjang}}$

$$= \frac{80}{5}$$

$$= 16\%$$
5. Index formula = $\frac{\text{Total skor}}{\text{Jumlah skor tertinggi}} \times 100\%$

RESULTS AND DISCUSSION

Profile Rice Farming Business Using the Jajar Legowo Planting System

Lowland rice farming in Siru Village is the main source of livelihood for the community. Most farmers have implemented the jajar legowo planting system in their rice fields. The planting system generally used is the jajar legowo 4:1 with the aim of increasing plant population and maximizing sunlight absorption (Di et al., 2020). The majority of farmers are of productive age and have considerable farming experience (Farid et al., 2018). The level of formal education of farmers is still relatively low, but farmers actively participate in agricultural extension and training activities conducted by the government and field agricultural extension workers (Prasetyo, nd). The jajar legowo rice farming cultivation system in Siru Village is as follows:

- 1) Land Clearing
Land cultivation aims to maintain nutrient availability in the soil. Good land cultivation practices will result in high yields, making land cultivation a key element in rice farming.
- 2). Preparation of Seedlings and Nurseries
Farmers in Siru Village obtained rice seeds from previous production results 42 times as an effort to reduce production costs or buy from seed producers.
- 3) Making Planting Rows
Preparation planting line tool with size plant distance as desired. Ingredients for planting line tool Can be used wood or other materials available as well as cost affordable.
- 4) Planting
Based on the results of field interviews, researchers found that the process of planting rice in a row legowo in Siru Village is carried out after the seeds have grown leaves with perfect (three to four strands) during the seeding process, or reach the age of 21 day old seedlings.
- 5) Maintenance
The maintenance process can be carried out by cleaning the rice plants from weeds, fertilizing and applying pesticides.
- 6) Harvest and Post-Harvest
Main thing in business farmer is get production results as much as possible. So important to know the method Siru Village farmers do harvesting and handling post harvest to minimize damage or loss post harvest.

Success Rate Empowerment In Human Development, Business Development, Environmental Development and Institutional Development Implementation Rice Cultivation Using the Legowo Row Planting System

Empowerment farmer is all effort For increase farmer ability For carry out business more farmers Good through activity education, training, counseling, mentoring and development systems and facilities marketing results agriculture and convenient access knowledge, technology and information, as well as strengthening institutional farmers (Amran et al., 2024) .

Table 1. Distribution of Knowledge Indicators of Human Development Farmers

No	Percentage Knowledge Farmer	Knowledge Level Category Farmer	Frequency	Percentage
1	20- <36%	Absolutely Not	0	0.00%
2	36%- <52%	In accordance Hope	0	0.00%
3	52%- <68%	No In accordance Hope	0	0.00%
4	68%- <84%	Enough In accordance Hope	5	14.3%
5	84%-<100%	Very In accordance Hope	30	85.7%
Total			35	100.00 %

Source : Results Analysis Data Primary, 2025

Based on results primary data analysis in table 4.6 above shows that the highest percentage is 85.7% or as many as 30 people have level of knowledge Very Much As Expected, category As expected and as many as 5 people with a percentage of 14.3%.

Table 2. Distribution of Human Development Farmer Attitude Indicators

No	Percentage Attitude Farmer	Category Attitude	Frequency	Percentage
1	20- <36%	Absolutely Not	0	0.00%
2	36%- <52%	In accordance Hope	0	0.00%
3	52%- <68%	No In accordance Hope	0	0.00%
4	68%- <84%	Enough In accordance Hope	6	17.14%
5	84%-100%	Very In accordance Hope	29	82.86%
Total			35	100.00%

Source : Results Analysis Data Primary, 2025

Based on results primary data analysis in Table 4.7 above shows that the highest percentage namely 82.68% or as many as 29 people have "Very Much in Line with Expectations" attitude in the

category As expected and as many as 6 people with percentage of 17.14% with category Enough As Expected.

Table 3. Distribution of Knowledge Indicators of Human Development Farmers

No	Percentage of Farmer Skills	Category Attitude	Frequency	Percentage
1	20- <36%	Absolutely Not	0	0.00%
		In accordance Hope		
2	36%- <52%	No In accordance	0	0.00%
		Hope		
3	52%- <68%	Enough In accordance	0	0.00%
		Hope		
4	68%- <84%	In accordance Hope	3	8.57%
5	84%-100%	Very In accordance	32	91.43%
		Hope		
Total			35	100.00%

Source : Results Analysis Data Primary, 2025

Based on results primary data analysis in table 4.8 above shows that the highest percentage is 91.43% or as many as 32 people have level Very Good Skills and Categories As expected, 3 people with percentage 8.57.

Table 4. Distribution of Success Rates of Farmer Empowerment Business Development

No	Percentage Farmer Business Development	Category Attitude	Frequency	Percentage
1	20- <36%	Absolutely Not	0	0.00%
		In accordance Hope		
2	36%- <52%	No In accordance	0	0.00%
		Hope		
3	52%- <68%	Enough In accordance	0	0.00%
		Hope		
4	68%- <84%	In accordance Hope	4	11.43%
5	84%-100%	Very In accordance	31	88.57%
		Hope		
Total			35	100.00%

Source : Results Analysis Data Primary, 2025

Based on results primary data analysis in the table above shows that the highest percentage is 88.57% or as many as 31 people have level of success Very suitable business and category As expected, 4 people with percentage 11.43%.

Table 5. Distribution of Success Rates of Community Development Empowerment Farmers

No	Percentage Environmental Development Farmer	Category Attitude	Frequency	Percentage
1	20- <36%	Absolutely Not	0	0.00%
		In accordance Hope		
2	36%- <52%	No In accordance	0	0.00%
		Hope		
3	52%- <68%	Enough In accordance	0	0.00%
		Hope		
4	68%- <84%	In accordance Hope	3	8.57%
5	84%-100%	Very In accordance	32	91.43%
		Hope		

Total	35	100.00%
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Source : Results Analysis Data Primary, 2025

Based on results primary data analysis in the table above shows that the highest percentage is 91.43% or as many as 32 people have level Environmental Development Success "Very Much in Line with Expectations" and category As expected, 3 people with percentage 8.57%.

Table 6. Distribution of Success Rates Beginner Group Class Ability in Institutional Development Farmer Empowerment

No	Percentage Class Beginner	Category Attitude	Frequency	Percentage
1	20- <36%	Absolutely Not	0	0.00%
2	36%- <52%	In accordance Hope	35	100.00%
3	52%- <68%	No In accordance Hope	0	0.00%
4	68%- <84%	Enough In accordance Hope	0	0.00%
5	84%-100%	Very In accordance Hope	0	0.00%
Total			35	100.00%

Source : Results Analysis Data Primary, 2025

Based on results primary data analysis in the table above shows that the highest percentage is 100.00% or as many as 35 people have level of success of Institutional Development with Not as Expected category.

Table 7. Distribution of Success Rates Advanced Group Class Ability in Institutional Development Farmer Empowerment.

No	Percentage Class Carry on	Category Attitude	Frequency	Percentage
1	20- <36%	Absolutely Not	0	0.00%
2	36%- <52%	In accordance Hope	0	0.00%
3	52%- <68%	No In accordance Hope	1	2.86%
4	68%- <84%	Enough In accordance Hope	28	80.00%
5	84%-100%	Very In accordance Hope	6	17.14%
Total			35	100.00%

Source : Results Analysis Data Primary, 2025

Based on results primary data analysis in the table above shows that the highest percentage namely 80.00% or as many as 28 people have level success class Carry on with category As Expected, Very Much as Expected Category as many as 6 people with percentage 17.14%, category Enough As expected by 1 person percentage of 2.86%, while those that do not meet expectations are not in that category.

Table 8. Distribution of Success Rates Middle Group Class Capabilities in Institutional Development Farmer Empowerment.

No	Middle Class Percentage	Category Attitude	Frequency	Percentage
1	20- <36%	Absolutely Not	0	0.00%
2	36%- <52%	In accordance Hope	34	97.14%

		Hope		
3	52%- <68%	Enough In accordance	0	0.00%
		Hope		
4	68%- <84%	In accordance Hope	0	00.00%
5	84%-100%	Very In accordance	1	2.86%
		Hope		
Total			35	100.00%

Source : Results Analysis Data Primary, 2025

Based on results primary data analysis in the table above shows that the highest percentage is 97.14% or as many as 34 people have level success Middle class with Category Not as Expected, Category As expected by 1 person percentage 2.86%, category Enough as Expected.

Table 9. Distribution of Success Rates Main Group Class Capabilities in Institutional Development Farmer Empowerment.

No	Percentage First Class	Category Attitude	Frequency	Percentage
1	20- <36%	Absolutely Not	0	0.00%
		In accordance Hope		
2	36%- <52%	No In accordance	34	97.14%
		Hope		
3	52%- <68%	Enough In accordance	0	0.00%
		Hope		
4	68%- <84%	In accordance Hope	0	00.00%
5	84%-100%	Very In accordance	1	2.86%
		Hope		
Total			35	100.00%

Source : Results Analysis Data Primary, 2025

From the results analysis it can be concluded that group farmer Want to be successful B has shown the same like level of success evaluation class beginner Still there is a number of necessary aspects improved to reach optimal potential.

CLOSING

Conclusion

Based on results analysis and discussion can be drawn conclusion as following :

- 1) Paddy farming in Siru Village shows that farmer has applied system plant row easy going with technique cultivation system plant row quite legowo okay, let's start from processing land, selecting seeds, planting, fertilization, control pest disease, until harvest and post-harvest. Jajar legowo capable of increasing productivity in paddy farming business increased from 4.1 tons/ha to 5.8 tons/ha or by 41% with a harvest period of two times in a year (May and December).
- 2) Success level empowerment farmers in groups farmer Want to be successful in Siru Village, Lembor District is in the "Very Much in Line with Expectations" category with percentage achievement maximum 90.23% through bina human , bina business , development environment , development institutional in implementation paddy field cultivation system plant row easygoing has.

Recommendation

Based on the conclusions above, the suggestions are as follows.

- 1) For farmers to further improve their group cooperation and participation skills in accordance with the recommendations of extension workers, and to play an active role in participating in activities organized by PPL.
- 2) Extension workers are expected to be more active in providing extension regarding good cultivation of jajar legowo rice plants and in determining the place and time of extension, it is better to adjust it to the wishes of farmers so that they participate actively.

- 3) It is hoped that the government, especially related sectors such as the Extension Center, will pay more attention to the needs of farmers so that the policies made can be in accordance with what farmers expect in farming so that development will be more effective and efficient.

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