Al-Sharf
Jurnal Ekonomi Islam
Vol. 7, No. 1 (2026) || ISSN 2723-5440 (Online)

Analysis of the Impact of the Use of Rice Harvesting Machines (Jarwo) on Community Welfare from an Islamic Economic Perspective (Case Study: Nagari Tanjung Betung Timur, Rao Selatan District, Pasaman Regency)

Afdol Zikri[1*], Yefri Joni[2], Ali Rahman[3], Rahmi[4]

Fakultas Ekonomi dan Bisnis Islam, Universitas Islam Negeri Sjech M. Djamil Djambek Bukittinggi*[1, 2, 3, 4]
*[1]*email: afdolzikri9@gmail.com*
[2]*email: yefrijoni@gmail.com*
[3]*email: alirahman@iainbukittinggi.ac.id*
[4]*email: rahmi@iainbukittinggi.ac.id*

Artikel Info			
Received: ***November 12, 2025***	***Revised:*** ***December 15, 2025***	***Accepted:*** ***January 17, 2026***	***Published:*** ***February 17, 2026***

Abstract: This study aims to analyze the impact of the use of rice harvesting machines (jarwo) on community welfare from an Islamic economic perspective. This study uses a qualitative approach. Data were collected through in-depth interviews with landowner farmers, farm laborers, machine operators, and community leaders in Nagari Tanjung Betung Timur. Based on the results of this study, it shows that the use of rice harvesting machines (jarwo) has had a contradictory impact on community welfare. On the one hand, this technology provides significant economic efficiency for landowner farmers with a reduction in harvest costs from IDR 4,200,000 to IDR 2,880,000 for 10,404 m² of land, as well as for machine owners who earn additional income of up to IDR 3-4 million per day. However, on the other hand, 97.2% of farm workers experienced a decline in welfare marked by the loss of their main livelihood

Abstrak: Penelitian ini bertujuan untuk menganalisis dampak penggunaan mesin pemanen padi (jarwo) terhadap kesejahteraan masyarakat dalam perspektif ekonomi Islam. Penelitian ini menggunakan pendekatan kualitatif. Data dikumpulkan melalui wawancara mendalam dengan petani pemilik lahan, buruh tani, operator mesin, dan tokoh di masyarakat Nagari Tanjung Betung Timur. Berdasarkan hasil penelitian ini menunjukkan bahwa penggunaan mesin pemanen padi (jarwo) telah menimbulkan dampak yang kontradiktif terhadap kesejahteraan masyarakat. Di satu sisi, teknologi ini memberikan efisiensi ekonomi yang signifikan bagi petani pemilik lahan dengan pengurangan biaya panen dari Rp 4.200.000 menjadi Rp 2.880.000 untuk lahan seluas 10.404 m², serta bagi pemilik mesin yang memperoleh pendapatan tambahan hingga Rp 3-4 juta

Al-Sharf
Jurnal Ekonomi Islam
Vol. 7, No. 1 (2026) || ISSN 2723-5440 (Online)

and changes in family consumption patterns. Nevertheless, the community showed good adaptability with 60% of farm worker families successfully finding alternative sources of income in other sectors. From an Islamic economic perspective, the application of this technology needs to be further evaluated to ensure the achievement of the principles of justice and welfare for all levels of society, especially the most vulnerable groups.

Keywords: Rice Harvesting Machine; Community Welfare; Islamic Economics.

per hari. Namun di sisi lain, 97,2% buruh tani mengalami penurunan kesejahteraan yang ditandai dengan hilangnya mata pencaharian utama dan berubahnya pola konsumsi keluarga. Meskipun demikian, masyarakat menunjukkan daya adaptasi yang baik dengan 60% keluarga buruh tani berhasil menemukan sumber pendapatan alternatif di sektor lain. Dari perspektif ekonomi Islam, penerapan teknologi ini perlu dievaluasi lebih lanjut untuk memastikan tercapainya prinsip keadilan dan kesejahteraan bagi seluruh lapisan masyarakat, terutama kelompok yang paling rentan terdampak.

Kata Kunci: Mesin Pemanen Padi; Kesejahteraan Masyarakat; Ekonomi Islam.

A. Introduction

Agriculture is a fundamental sector in the economy, particularly in rural areas. As an agricultural country, Indonesia has a population whose livelihoods largely depend on the agricultural sector, particularly rice cultivation. (oris Pangi, Jouke J Lasut, And Cornelius J Paat, 2020) However, farmer productivity and welfare still face various complex challenges.

Nagari Tanjung Betung Timur is a strategic area in Rao Selatan District, Pasaman Regency, West Sumatra, with unique geographic and socioeconomic characteristics. This area is dominated by agricultural land with traditional farming systems that are slowly undergoing technological transformation. The agrarian community structure, still strongly rooted in the values of family and mutual cooperation, makes the agricultural sector not just an economic activity but also a vehicle for social interaction and the preservation of local culture. Based on population data for Nagari Tanjung Betung Timur in 2024, out of a total population of 3,626, 871

Al-Sharf
Jurnal Ekonomi Islam
Vol. 7, No. 1 (2026) || ISSN 2723-5440 (Online)

people were farmers. (kantor wali nagari, 2024) However, the agricultural sector currently faces complex challenges due to modernization and mechanization.

The most significant technological transformation in recent years has been the introduction of rice harvesting machines (jarwo) in Nagari Tanjung Betung Timur, which covers 1,129 hectares of land. This change has fundamentally altered traditional agricultural practices in the region. One of the most striking aspects of this mechanization is the drastic increase in labor efficiency. (A.M Fadly Parayudhi, Rasmeidah Rasyid, and Mais Ilsan, 2021) Previously, the harvesting process required dozens of workers from a total of 871 farm laborers spread across three hamlets (295 people in Rambahan Hamlet, 274 people in South Rambahan, and 302 people in Kampung 7 Hamlet). (Kantor Wali Nagari, 2024) Now, each rice harvesting machine only requires two operators, consisting of one driver to control the machine and another person in charge of collecting and inserting the rice directly from the machine.

Figure 1. Rice harvesting machine

Before the arrival of this machine, farm laborers in the three hamlets relied not only on income from their own land but also earned additional income through daily labor in other farmers' fields during the harvest season. The 1,129 hectares of land previously provided significant employment opportunities for 871 farm laborers. However, agricultural mechanization through the jarwo machine has drastically reduced the need for manual labor. Currently, with 12 rice harvesting machines in

Al-Sharf
Jurnal Ekonomi Islam
Vol. 7, No. 1 (2026) || ISSN 2723-5440 (Online)

Nagari Tanjung Betung Timur, operating all the machines requires only 24 workers. (*Jawari Pemilik Mesin Pemanen Padi*, 2025) This has had complex impacts, particularly for the communities in Jorong Rambahan, South Rambahan, and Jorong Kampung 7, most of whom rely on agriculture for their livelihoods.

Based on data obtained by researchers during initial observations, this technological transformation has significantly changed the labor structure in Nagari Tanjung Betung Timur. Of the 871 farm laborers spread across the three jorongs, only 24 operators are now needed for the 12 rice harvesting machines available. This represents a reduction in the workforce of 847 out of the total number of farm laborers. This situation presents new challenges in providing alternative employment for farm laborers affected by this agricultural modernization.

Table 1
Farmers' Income and Harvested Land Area in East Tanjung Betung Village

No	Nama	Pendapatan	Luas Lahan
1	Agustia Warman	1.600 - 2.400 Kg	3.468 m2
2	Sadinar	1.200-1.800 Kg	2.601 m2
3	Saruni	2.400-3.600 Kg	5.202 m2
4	Masni	4.800-7.200 Kg	10.404 m2
5	Mardas	1.200-1.800 kg	2.601 m2
6	Masrudin	2.400-3.600 Kg	5.202 m2
7	Nanag Tomas	2.800-4.200 kg	6.069 m2
8	Sakmar	800-1.200 kg	1.734 m2
9	Yasrian	1.200-1.800 kg	2.601 m2
10	Karmiti	3.200-4.800 kg	6.936 m2

Source: Interviews with Rice Farmers, 2024

Based on the table above, farmer income data reveals significant variations in productivity and income. Farmers with 10,404 m² of land, like Masni, are able to produce 4,800-7,200 kg of rice, while farmers with smaller plots, like Sakmar (1,734 m²), only produce 800-1,200 kg. Compared to the traditional farm labor system, where each worker is paid Rp 50,000 for a half-day and Rp 70,000 for a full day (morning to afternoon) for both male and female workers, there is a significant difference in costs.

Al-Sharf
Jurnal Ekonomi Islam
Vol. 7, No. 1 (2026) || ISSN 2723-5440 (Online)

For a plot as large as Masni's, it takes 2-3 days for the rice cutting process and an additional day for the threshing process, requiring a total of 15-20 workers. This means total labor costs can reach Rp 4,200,000 (20 people × Rp 70,000 × 3 days). Meanwhile, using a harvesting machine costs Rp. 400 per kg, for a harvest of 7,200 kg, it only costs Rp 2,880,000, resulting in savings of around Rp 1,320,000. (Buruh Tani, komunikasi pribadi, 2025).

Meanwhile, for smaller plots like Sakmar's, with a yield of 800-1,200 kg, the traditional system requires 8-10 workers for 2 days plus 1 day for threshing, with a total cost of approximately IDR 1,680,000 (8 people × IDR 70,000 × 3 days). Using a harvesting machine, which costs IDR 400 per kg, for a 1,200 kg harvest, the cost is only IDR 480,000, a savings of up to IDR 1,200,000. This transition to a mechanized system clearly demonstrates significant cost efficiencies for farmers, but also reduces the income of farm laborers who have traditionally relied on daily wages.

In addition to labor issues, the use of rice harvesting machines has changed the pattern of social interaction in traditional farming communities. Harvesting, which was once a forum for mutual cooperation and strengthening relationships between farmers, has now shifted to a more individualistic activity. The loss of shared moments during the harvest has the potential to undermine long-standing social bonds and family values within farming communities. This situation creates new challenges in maintaining social cohesion within farming communities amidst the tide of agricultural modernization. (bdul Haris, Kliwon Hidayat, and Keppi Sukesi, 2024).

The shift in agricultural patterns from a cooperative system to modern mechanization has complex economic implications for farming communities. The loss of traditional cooperative systems based on mutual cooperation has eliminated mutual aid methods that previously benefited all parties, allowing farmers to save on wages through a system of mutual assistance without direct payment. The weakening of social ties and family values has also resulted in the loss of the mutual aid system that had supported farmers during difficulties, such as crop failures. This situation has led

to a greater dependence on modern financial systems, requiring farmers to have cash on hand to pay for machinery services. (Samaria, Vandalisna, and Tandi Ismail, 2016)

The weakening of social ties and family values has also resulted in the loss of the mutual assistance system that has supported farmers in times of hardship. Previously, in three hamlets (jorong)—Jorong Rambahan with 295 farm laborers, Rambahan Selatan with 274 farm laborers, and Jorong Kampung 7 with 302 farm laborers—a mutually beneficial system of profit-sharing and labor assistance existed. This situation has now changed with the arrival of 12 harvesting machines requiring only 24 operators, encouraging greater reliance on modern financial systems, where farmers must provide cash to pay for the machines' services, which cost Rp 400 per kg of rice.

An Islamic economic perspective provides a comprehensive analytical framework for assessing the transformation of agricultural technology. Fundamental principles such as justice (al-adl), welfare (mashlahah), and benefit (manfaah) serve as important benchmarks for understanding the implementation of rice harvesting machines. Based on the explanation above, researchers need to study the impact of the use of rice harvesting machines (jarwo) on increasing the income of rice farmers, therefore, the author chose the research title: Analysis of the Impact of the Use of Rice Harvesting Machines (Jarwo) on Community Welfare in an Islamic Economic Perspective (Case Study: Nagaritanjung Betung Timur, Rao Selatan District, Pasaman Regency).

B. Research Method

This study uses a qualitative descriptive method with a natural approach implemented in Nagari Tanjung Betung Timur, Rao Selatan District, Pasaman Regency. Research informants were selected by purposive sampling with the following criteria: (1) ownership of active rice fields, (2) direct involvement in the rice harvesting process using a rice harvesting machine (Jarwo), and (3) having a rice field area >2 lungguk (3,468 m^2). Data collection techniques used semi-structured

interviews to obtain in-depth information regarding the impact of the use of rice harvesting machines on farmer welfare from an Islamic economic perspective, as well as documentation methods to complement the data from the interviews.

Data analysis used the Miles and Huberman interactive model consisting of three stages: Data reduction, namely processing raw data from interviews and documentation by sorting data that is in accordance with the research topic and then arranging it concisely and clearly, Data presentation, namely compiling information from data that has been obtained accurately and systematically and then presented descriptively, and Conclusion drawing, in the form of giving meaning to qualitative data that has been applied according to the information or problems obtained from the analysis results in the form of descriptions.

C. Results and Discussion

1. The Impact of the Use of Rice Harvesting Machines (Jarwo) on Employment Opportunities for Farm Workers in East Tanjung Betung Village

The research results show that the use of the Jarwo harvester has resulted in a significant transformation in the agricultural workforce structure in East Tanjung Betung Village. Overall, the main impacts identified are:

First, there has been a drastic reduction in labor requirements. Harvesting a 2-square-meter rice field, which previously required 15-20 people for 2-3 full days, now requires only 2 operators and can be completed in just 3-4 hours. Second, of the total 871 farm laborers in three hamlets, only 24 people (2 operators per machine) are needed to operate 12 Jarwo machines, resulting in a 97.2% reduction in the workforce. Third, the number of working days in a harvest season has decreased drastically from 20-30 days to just 5-10 days. Fourth, the labor force participation rate in the harvesting sector has decreased from around 60% to just 12%.

Al-Sharf
Jurnal Ekonomi Islam
Vol. 7, No. 1 (2026) || ISSN 2723-5440 (Online)

Overall, the impact of the use of the Jarwo harvester on employment opportunities for farm laborers in East Tanjung Betung Village can be summarized as follows:

a. Structural Disruption in the Agricultural Employment System

The research reveals structural disruption in the local agricultural employment system. The reduction in labor requirements by up to 97.2% has created a significant labor surplus without being offset by the creation of adequate alternative employment opportunities. This situation places serious pressure on the local economic structure, particularly for communities that rely heavily on income as farm laborers.

b. Transformation of Workforce Qualifications

The research findings indicate a fundamental shift from labor-intensive jobs that require no specialized skills to specific jobs that require technical skills to operate machinery. This transformation creates a significant skills gap, with the majority of traditional farm laborers lacking the capacity to transition to machine operators without specialized training. This gap further complicates the economic adaptation of farm laborers.

c. Seasonal Economic Imbalance

The reduction in the number of workdays from 20-30 days to 5-10 days per harvest season has created an acute seasonal economic imbalance. Additional income from harvesting activities, which previously supported families for almost a month, is now available only for very short periods. This imbalance results in higher income volatility and reduces the economic resilience of farmworker households.

d. Pressure on the Traditional Socio-Economic System

The rural economic system in Nagari Tanjung Betung Timur has long been based on a reciprocal labor relationship, where many farmworkers also own small plots of land and work on others' land for supplemental income. Research

reveals that mechanization has disrupted the balance of this socio-economic system, creating significant adaptation pressures and potentially fostering social tensions if not managed effectively.

Overall, this research reveals that while agricultural mechanization through the use of the Jarwo harvester dramatically increases production efficiency, its impact on the structure of farmworker employment opportunities is disruptive and requires integrated policy interventions. The transition from traditional to mechanized agriculture requires a comprehensive, complementary strategy to ensure successful economic adaptation for all levels of society, especially the most vulnerable farmworker groups.

2. The Impact of the Use of Rice Harvesting Machines (Jarwo) on Community Welfare in East Tanjung Betung Village

Based on field research through direct interviews and observations of the community in Nagari Tanjung Betung Timur, the use of rice harvesting machines (Jarwo) has resulted in complex transformations in the community's welfare structure. This comprehensive analysis presents key findings that illustrate the reality across various dimensions of community life following the introduction of modern agricultural technology.

The research findings reveal an increasingly striking dualism in welfare within the community in Nagari Tanjung Betung Timur. On the one hand, both landowners and Jarwo machine owners have experienced significant improvements in economic well-being. Interviews with landowners like Mr. Masni (owning 10,404 m^2) confirmed substantial harvest cost efficiencies, from approximately Rp 2,100,000 using traditional methods to only Rp 800,000 using the Jarwo machine. Similarly, farmers with smaller plots, such as Mr. Sakmar (owning 1,734 m^2), reported savings of up to Rp 1,200,000 per harvest season. Jarwo machine owners like Mr. Armi even earn substantial additional income, reaching Rp 3-4 million per day.

Al-Sharf
Jurnal Ekonomi Islam
Vol. 7, No. 1 (2026) || ISSN 2723-5440 (Online)

However, on the other hand, this technological transformation has created a structural imbalance in the workforce that has directly impacted the lives of farmworkers. Of the 871 farmworkers spread across three hamlets, only 24 are needed to operate the 12 Jarwo machines available, resulting in a 97.2% reduction in the workforce in the rice harvesting sector. Mr. Dodo Kunia, a farmworker, stated: "I used to be able to work almost a full month during the harvest season, but now I only work 5-7 days at most." This drastic reduction in workdays was confirmed by the majority of informants (85%) and is a major source of concern regarding the economic stability of farmworker families.

Furthermore, after the introduction of the machines, farmworkers experienced a reduction in income due to the use of rice harvesting machines. Analysis of data on income reductions among farmworkers in East Tanjung Betung Village revealed significant economic consequences due to the implementation of rice harvesting machines (Jarwo). The 20 farmworkers sampled experienced varying but all substantial reductions in income. The following data shows the reduction in income of farmworkers in East Tanjung Betung Village:

Table 2
Reduction in Farm Laborers' Income Following the Introduction of Rice Harvesting Machines

No	Name	Income Reduction	No	Name	Income Reduction
1	Agustia Warman	Rp. 980.000	11	Radiah	Rp. 1.190.000
2	Sadinar	Rp. 1.050.000	12	Sakmar	Rp. 1.197.000
3	Saruni	Rp. 1.260.000	13	Nanang Tomas	Rp. 1.680.000
4	Afrison	Rp. 1.400.000	14	Yasrian	Rp. 1.540.000
5	Dodo Kurnia	Rp. 1.540.000	15	Sudirman	Rp. 1.120.000
6	Jon Hanibar	Rp. 1.750.000	16	Misbah	Rp. 1.330.000
7	Sarina	Rp. 1.400.000	17	Karmiti	Rp. 1.050.000
8	Sanusi	Rp. 1.470.000	18	Masni	Rp. 1.260.000
9	Muhammad Rafi	Rp. 1.330.000	19	Mardas	Rp. 1.540.000

Al-Sharf
Jurnal Ekonomi Islam
Vol. 7, No. 1 (2026) || ISSN 2723-5440 (Online)

10	Yusnita	Rp. 1.260.000	20	Masrudin	Rp. 980.000

Source: Primary Data (Interview) Rice Farm Laborers, May 13, 2025

Table 2 shows that most farm laborers experienced income reductions ranging from Rp 1,000,000 to Rp 1,500,000. Several respondents, such as Saruni, Yusnita, and Masni, experienced a decrease of Rp 1,260,000, while Dodo Kurnia, Yasrian, and Mardas lost Rp 1,540,000. This pattern indicates that the economic impact of the implementation of harvesting technology is not only individual, but has become a collective phenomenon affecting the entire farm labor community in the region.

Based on a daily farm laborer wage of Rp 70,000, this income reduction data represents the accumulated loss of employment opportunities during the harvest season before the introduction of the rice harvester (jarwo). For example, the Rp 980,000 income reduction experienced by Agustia Warman and Masrudin is equivalent to the loss of 14 workdays, while Jon Hanibar's Rp 1,750,000 loss is equivalent to the loss of 25 workdays. These figures indicate that before the implementation of mechanized technology, farm laborers performed a significant amount of work during the harvest season, but now this work has been completely replaced by technology. This phenomenon reflects the direct impact of agricultural mechanization, which has resulted in the loss of seasonal employment opportunities for most farm laborers.

This labor transformation has had a ripple effect on the economic structure of farm laborer households. Expenditure records from 20 families revealed a shift in consumption patterns, with the proportion of food spending increasing from an average of 45% to 60% of total family expenditure. Mrs. Radiah expressed this reality: "Now we spend more carefully, prioritizing staple foods." This shift, based on BPS indicators, indicates a decline in welfare levels from moderate to low.

Population dynamics have also undergone structural changes, with an increase in the dependency ratio within families. Mr. Afrison stated: "Now many young people can no longer rely on harvest work. They are dependent on parents or siblings who

still have a steady income." Of the 20 families interviewed, 60% reported that a productive-age family member had lost seasonal work as a harvest laborer, creating new challenges for the family economy.

Interestingly, amidst this economic pressure, the people of Nagari Tanjung Betung Timur demonstrated high resilience and adaptability. The study revealed no cases of children dropping out of school due to financial difficulties among the 20 families studied. In fact, there has been a significant increase in the number of residents continuing on to college, from 5% to 15% in the past five years. Mr. Agustia emphasized the priority of education in his family: "We are willing to postpone house renovations so that our children can go to college. If they are smart, their future is more secure." This phenomenon reflects a long-term adaptation strategy where farming families view education as an investment to escape the limitations of the agricultural economy.

Community health has also undergone an interesting transformation. The use of the Jarwo machine has reduced the heavy physical workload, with health complaints related to muscle and back pain decreasing by 45% compared to traditional harvesting methods. Mrs. Sadinar confirmed these benefits: "I used to have back pain after harvesting, but now I don't have to bend over for hours in the rice fields." However, a new pattern of health problems has emerged for machine operators, with 62.5% reporting mild to moderate hearing loss due to continuous exposure to machine noise.

Housing and environmental conditions indicate moderate stress due to this economic transformation. Of the 20 farmworker families studied, 40% experienced difficulties maintaining their homes, and 25% postponed home renovations. Field observations confirmed that the average farmworker's housing is still dominated by semi-permanent structures with an area of less than 45m². However, in-depth interviews revealed that the postponement of home renovations is not always due to decreased income, but rather due to prioritizing investment in children's education.

Al-Sharf
Jurnal Ekonomi Islam
Vol. 7, No. 1 (2026) || ISSN 2723-5440 (Online)

Mrs. Sarina emphasized: "We're postponing home renovations for now, as long as our children can go to school."

Economic adaptability is a prominent characteristic of communities facing this technological disruption. Research findings indicate that 60% of farm laborer families have found alternative sources of income, such as small-scale trading, becoming motorcycle taxi drivers, or working in the construction sector. The head of the Nagari Community Empowerment Institute confirmed this phenomenon: "Our community is adaptive. Even though job opportunities in the rice fields have decreased, they seek other alternatives." This flexibility is a crucial social capital that enables some communities to survive amidst the transformation of the agricultural economic structure.

However, structural challenges remain, particularly related to the unequal distribution of technological benefits. Research reveals a widening economic gap between landowners and farm laborers, creating a more pronounced stratification of welfare. While landowners enjoy cost efficiencies and increased economic surplus, some farm laborers face reduced employment opportunities and income, resulting in a shift in consumption patterns toward less prosperous ones.

Based on research in Nagari Tanjung Betung Timur, the use of rice harvesting machines (Jarwo) has had a paradoxical impact on community welfare. On the positive side, this technology provides significant benefits for landowners by reducing harvest costs from Rp 2,100,000 to Rp 800,000, creating new income opportunities for machine owners up to 3-4 million rupiah per day, reducing physical workloads that result in muscle and back-related health complaints, and encouraging increased participation in higher education.

However, on the negative side, the implementation of this technology has created mass unemployment by reducing the need for labor from 871 to only 24 people, resulting in a decrease in farm laborers' income between Rp 980,000 and Rp 1,750,000 per harvest season, causing changes in the consumption patterns of farm

laborers' families from a middle to low welfare level with an increasing proportion of food expenditure, and widening the economic gap between landowners and farm laborers, creating an increasingly striking welfare stratification within the village community.

D. Conclusion

Based on the research conducted, it was found that:

1. The use of rice harvesting machines (Jarwo) has had a significant negative impact on employment opportunities for farm laborers in East Tanjung Betung Village. Of the 871 farm laborers, only 24 are able to work as machine operators, representing a 97.2% reduction in the workforce. The number of working days per harvest season has also decreased drastically, from 20-30 days to just 5-10 days. As a result, farm laborers have experienced a significant decrease in income, ranging from Rp 980,000 to Rp 1,750,000 per harvest season. This situation has created structural disruptions in the local agricultural employment system, with most farm laborers losing their primary livelihoods without adequate alternative employment.
2. The use of rice harvesting machines (Jarwo) has created widespread prosperity in the community of East Tanjung Betung Village. On the one hand, landowners benefit significantly by reducing harvest costs from Rp 2,100,000 to Rp 800,000, while machine owners earn an additional income of up to Rp 3-4 million per day. However, on the other hand, farmworkers experience a decline in well-being, marked by changes in family consumption patterns, with the proportion of food expenditure increasing from 45% to 60%—a decline, according to BPS indicators, from moderate to low levels of well-being. Despite this, the community demonstrates good adaptability, with no cases of children dropping out of school and even an increase in higher education participation from 5% to 15%. Furthermore, 60% of farmworker families have found alternative sources of income in other sectors such as small trade, motorcycle taxis, or construction.

From a health perspective, complaints of muscle and back pain have decreased by 45%, but hearing problems have arisen for 62.5% of machine operators due to interference. Overall, the rice harvesting machine (Jarwo) technology does increase production efficiency, but its impact on the socio-economic structure of society is uneven and requires special attention to ensure the welfare of all levels of society, especially the most affected group of farm laborers.

E. Bibliography

Parayudhi, A. M. F., Rasyid, R., & Ilsan, M. (2021). The effect of *combine harvester* technology on rice harvest productivity (Case study of Kadidi Village, Panca Rijang District, Sidrap Regency). *Scientific Journal of Agribusiness*, 4.

Haris, A., Hidayat, K., & Sukesi, K. (2024). Socioeconomic changes due to the use of *combine harvesters* in Persil Raya Village, Seruyan Hilir District, Seruyan Regency, Central Kalimantan. *Journal of Agricultural Economics and Agribusiness*, 8.

Farm laborers. (2025). *Farmer income*.

Ghozali, I. (2021). *Multivariate analysis application with IBM SPSS 26*. Diponegoro University Publishing Agency.

Jawari. (2025). *Rice harvester owner*.

Village Head Office. (2024). *Population data of East Tanjung Betung Village*. East Tanjung Betung.

Village Head Office. (2024). *Agricultural statistics data of East Tanjung Betung Village*. East Tanjung Betung: Village Head Office.

Pangi, O., Lasut, J. J., & Paat, C. J. (2020). Socioeconomic life of farmers in Maliku Satu Village, East Amurang District, South Minahasa Regency. *Holistic Journal*, 13.

Samaria, Vandalisna, & Ismail, T. (2016). The impact of agricultural mechanization on economic, social, and cultural changes in the rice farming community (Case study of To'Pongo' Village, Luwu Regency). *Agrisistem Journal*.