JPPIPA 11(12) (2025)

Jurnal Penelitian Pendidikan IPA

http://jppipa.unram.ac.id/index.php/jppipa/index

The Sustainability Analysis of Shallot Farming of The Lembah Palu Variety in Sigi Regency

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Received: October 21, 2025
Revised: December 6, 2025
Accepted: December 25, 2025
Published: December 31, 2025

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DOI: 10.29303/jppipa.v11i12.13206

Abstract: This study aims to analyze the sustainability of Lembah Palu variety shallot farming in Sigi Regency from economic, social, and environmental perspectives. The research involved 50 shallot farmers selected using a proportional random sampling technique. Primary data were obtained through interviews, field observations, and questionnaires, supported by secondary data from relevant institutions. The sustainability level was assessed using the Multi-Dimensional Scaling (Rapfish) approach to generate sustainability indices for each dimension. The results showed that the overall sustainability status of shallot farming was categorized as less sustainable, with an average index value of 49.37. The environmental dimension recorded the lowest index value (26.97), indicating high vulnerability due to pest and disease intensity, erosion risk, and low utilization of organic inputs. The economic dimension was categorized as fairly sustainable (64.00), as farming activities still provided financial benefits despite high production costs and limited capital access. Meanwhile, the social dimension was also fairly sustainable (57.13), reflecting contributions to household welfare, although farmer institutional strength and land tenure certainty require improvement. Strengthening environmentally friendly practices, improving cost efficiency, and empowering farmer institutions are essential to support balanced and sustainable shallot agribusiness development.

Keywords: Lembah Palu Shallot Variety; Multi-Dimensional Scaling (MDS); Rapfish; Sustainability.

Introduction

The Lembah Palu variety shallot farming business is one of the agricultural sectors that plays an important role in the economy of Central Sulawesi, especially in Sigi Regency. This regency has great potential for the development of the Lembah Palu variety shallot due to favorable agroclimatic conditions, such as soil fertility, adequate rainfall, and the availability of water resources for irrigation. The production of this shallot variety is a major source of income for many farmers and contributes to food security and the local economy. In addition, shallots are a strategic commodity in the horticultural sector with high demand in both local and national markets (BPS Kabupaten Sigi, 2020; Kementan, 2021). The following data shows the harvested area, production, and productivity of shallots in Sigi Regency from 2018 to 2023.

Table 1. Harvest area, production, and productivity of shallot in Sigi District Sigi District, 2018–2023

No.	Year	Harvest Area (ha)	Production (tons)	Productivity (tons/ha)
1	2018	379.00	2,125.00	5.61
2	2019	627.00	3,094.90	4.94
3	2020	418.75	1,902.20	4.54
4	2021	95.25	233.45	2.45
5	2022	306.00	905.64	2.96
6	2023	258.00	922.58	3.58

Source: (BPS Kabupaten Sigi, 2024)

Based on the data in Table 1, shallot production in Sigi Regency has declined, particularly after the earthquake and liquefaction that struck the region in

How to Cite:
Damayanti, L., Laksmayani, M. K., Malik, S. R., Reyvaldi, M., Hardiyanti M.M, S., Esther C.R, O., & Mukhlis, M. (2025). The Sustainability Analysis of Shallot Farming of The Lembah Palu Variety in Sigi Regency. *Jurnal Penelitian Pendidikan IPA*, *11*(12), 918–928. https://doi.org/10.29303/jppipa.v11i12.13206

2018. These events caused severe damage to agricultural land and irrigation infrastructure, resulting in a drastic reduction in shallot production. Many farmers also lost their farmland, leading to a significant decline in output and slowing the recovery of the agricultural sector in the region (BNPB, 2019). Meanwhile, the demand for the Lembah Palu shallot variety continues to increase, as it is the main raw material for the fried shallot industry in Palu City. This industry has a large production capacity and requires a stable supply of high-quality shallots. The distinctive characteristics of the Lembah Palu shallot, such as lower water content and a stronger aroma, make it highly preferred by processors. Increasing demand creates economic opportunities for farmers; however, it also places greater pressure on ensuring the sustainability of farming systems.

Several studies have examined the sustainability of shallot and other horticultural farming systems, demonstrating that multidimensional sustainability assessment is essential to support long-term viability. The Rapfish–MDS approach has been widely applied to evaluate sustainability, including in shallot farming in Brebes Regency, where it was found that economic, social, and environmental dimensions are critical and that several sensitive attributes strongly influence sustainability outcomes (Susilawati et al., 2019). Similar findings in other regions of Indonesia highlight the importance of integrated sustainability assessments that simultaneously consider economic, social, and environmental aspects (Leki et al., 2021; Adetya & Sidqi, 2024).

However, very limited studies specifically analyze the sustainability status of the Lembah Palu shallot variety within a comprehensive framework that integrates these three dimensions and is directly relevant to regional food security and agribusiness resilience. This study addresses that gap by employing the Multi-Dimensional Scaling (Rapfish) approach to comprehensively evaluate sustainability and to identify key leverage attributes that influence sustainability performance, thereby providing evidence-based recommendations for policymakers and stakeholders. Therefore, this research is important for determining the extent to which the current farming system can remain ecologically, economically, and socially sustainable in the long term. Accordingly, this study aims to analyze the sustainability of Lembah Palu shallot farming in Sigi Regency based on economic, social, and environmental dimensions.

Method

Research Location and Time

This research was conducted in Sigi Regency, Central Sulawesi Province, which is one of the main areas for the production of Lembah Palu variety shallots. The selection of the research area was carried out by purposive method or deliberately (Sugiyono, 2013; Mukhlis et al., 2023; Mukhlis et al., 2024). This location was chosen based on its high agricultural potential and the challenges faced by farmers in improving the sustainability of Lembah Palu variety shallot farming. The research was conducted from April to October 2025.

Population, Sample, and Sampling Technique

The population in this study was farmers of the Lembah Palu variety of shallots in Biromaru Village, Sigi Regency, spread across three villages, namely Maku Village, Bolupontu Jaya Village, Oloboju Village, and Soulove Village. The total population of BMVLP farmers is 724, consisting of 559 farmers in Sigi District (372 farmers in Bolupontu Jaya Village and 187 farmers in Oloboju Village) and 165 farmers in Dolo District (Maku Village).

In the first stage, *purposive sampling* was used to determine the district sample, which is a method of deliberately selecting samples based on specific considerations (Singarimbun & Effendi, 2015; Rasyid et al., 2024). The district selected was Sigi Biromaru District. This district was selected based on (i) it being one of the largest BMVLP production centers in Central Sulawesi, which is also the location of the Integrated Agribusiness Area, (ii) it being a BMVLP commodity development area and recommended for research due to its excellent development potential, (iii) Sigi Biromaru Regency is the longest-standing producer of BMVLP by the local population. Furthermore, in determining the subdistricts and villages, the *purposive sampling* method was used with the following considerations: (i) it is a production center, (ii) it has the largest number of farmers, and (iii) it has the largest planting area.

The number of samples taken was 50 farmers spread across several main subdistricts in Sigi Regency. The sampling technique was stratified random sampling to ensure the representation of various farmer groups based on business scale and access to agricultural technology (Sugiyono, 2021). In addition to samples from farmers, this study also obtained information from collectors, processors (fried onion SMEs), and the Agriculture Office.

According to (Singarimbun & Effendi, 2015), if a study or data analysis uses parametric statistics, the sample size must be larger, meaning more than 50 samples. Based on this, the sample was selected using Proportional Random Sampling, resulting in a sample size of 50 respondents. Thus, the proportional number of respondents in each village was calculated using the following equation:

$$(n) = \frac{Ni}{N} x\ n \quad \text{(i)}$$

Where:
n = Sample proportion
Ni = Subpopulation of stratum i (i) = Bolupontu Village, Oloboju Village, and Maku Village) N = Total population (724 farmers) (Sugiyono, 2018).

From this equation, the distribution of the number of respondents is obtained as follows (Table 2).

Table 2. Distribution of the Number of Respondents of the Lembah Palu variety shallot in Sigi District, 2024

Village	Total Population	Sample Size
Bolupontu Village	372	26
Maku Village	165	11
Oloboju Village	187	13
Total	724	50

Source: Primary Data, 2025

Types and Methods of Data Collection

The data in this study includes secondary data and primary data (Dunn et al., 2015; Damayanti et al., 2024). The data used in this study consists of primary data obtained directly from farmers through interviews, field observations, and questionnaires. Meanwhile, secondary data was obtained from relevant agencies such as the Sigi District Agriculture Office, the Central Statistics Agency, scientific journals, and previous studies. Data collection was carried out through observation, interviews (questionnaires), and documentation studies.

Data Analysis Method
Multidimensional Scaling (MDS) Analysis

The Rapfish ordination technique using the MDS method is an analytical approach that transforms complex multidimensional data into simpler dimensions to evaluate sustainability status (Fauzi, 2019). The sustainability score in Rapfish is based on the position of the assessed units along a continuum ranging from "bad" to "good" sustainability performance. Therefore, several requirements must be fulfilled to ensure reliability and validity of the ordination results. Attributes or indicators must be assigned to the appropriate dimensions so that economic indicators are assessed within the economic dimension, social indicators within the social dimension, and environmental indicators within the environmental dimension. Each dimension should consist of an adequate number of attributes, preferably more than six, to generate stable ordination results. The number of analyzed units should ideally be equal to or greater than the number of attributes, preferably two to three times larger, to avoid bias due to outliers. The selected attributes must be easily and objectively ranked based on the rapid appraisal principle and allow for extreme values representing both good and poor sustainability conditions. Furthermore, scoring should be transparent and well documented. The goodness of fit of the MDS model is assessed based on the stress value, which should be less than 0.25, and supported by a high R-square value to indicate model accuracy and reliability (Fauzi, 2019; Kavanagh & Pitcher, 2004; Pitcher & Preikshot, 2001).

Sustainability in this study was assessed through three main dimensions: social, economic, and environmental. The social dimension includes attributes related to farmer education level, participation in farmer groups, access to extension services and training, household welfare, family labor involvement, and the potential for social conflict within farming communities. The economic dimension consists of farmer income, land productivity, production costs, access to credit or capital, shallot price stability, market access, and business diversification. Meanwhile, the environmental dimension includes the availability and quality of water resources, fertilizer and pesticide use, soil erosion and land degradation, soil and water conservation practices, biodiversity on agricultural land, and the impact of climate change on production.

The identified attributes are given a score range of 0-2 or adjusted to existing criteria. The lowest score range is 0 and the best is 2. Scores may differ for each indicator according to the number of scores required. The data used is ordinal with a scale range from 0 to 2 or can be adjusted as needed, but cannot be reversed.

Result and Discussion

Analysis of the Sustainability Status of the Lembah Palu variety of shallot Farming

The analysis of the sustainability status of Lembah Palu variety shallot farming in Sigi Regency used the *Multidimensional Scaling* (MDS) method, which was modified into *Rap-Agriculture*, divided into three dimensions, namely the environmental dimension, the economic dimension, and the social dimension. Based on these dimensions, 30 attributes were obtained, consisting of 8 (eight) attributes for the environmental dimension, 13 (thirteen) attributes for the economic dimension, and 9 (nine) attributes for the social dimension. The data were obtained from the three dimensions through interviews and observations at the research site, then processed using *Rapfish software* to determine the sustainability status index for each dimension. To determine the sustainability index for each dimension, each attribute was assessed and analyzed qualitatively and quantitatively. The index is divided into four categories, according to Fauzi & Anna (2005) as shown in Table 4.

Table 4. Sustainability status categories based on the R apfish index results

Index Value	Category
0–25	Not Sustainable
26–49	Less sustainable
50–75	Fairly sustainable
76–100	Very sustainable

The results of the analysis show that the sustainability status of the Lembah Palu variety shallot farming business in Sigi Regency is 49.37. This indicates that the management of the shallot farming business, which is measured using three dimensions (economic, social, and environmental), has a less sustainable status. The validity of the sustainability status analysis results is seen from statistical parameters, namely the *stress* value and *R-square* (R^2) value, which indicate the accuracy and reliability of the model used. The sustainability status is reflected in the sustainability index value for each dimension, as shown in Table 5.

Table 5. Sustainability Index Values and Parameters for Lembah Palu variety of shallots Farming.

Dimension Sustainability	Index Sustainability	Sustainability Status	Parameter (%)	
			Stress	*R-square*
Environment	26.97	Less Sustainable	13.62	93.88
Economy	64.00	Moderately Sustainable	13.08	95.22
Social	57.13	Sufficiently Sustainable	13.76	94.85
Average	49.37	Less Sustainable		

Source: Processed primary data (2025)

According to Kavanagh and Pitcher (2004), stress values can be considered good if they are < 25% and have an R-square value > 80%. This indicates the feasibility of the attributes in the three dimensions used in the analysis of the sustainability status of Lembah Palu variety shallot farming in Sigi Regency. The analysis results show the sustainability level of the indicators analyzed in the economic, social, and environmental dimensions. The sustainability index value of shallot farming can be visualized in the form of a sustainability diagram that reflects the positive and negative dimensions of each aspect studied.

The sustainability index values for the three dimensions can be visualized in the form of a sustainability diagram, which can be seen in Figure 1. This shows that the average index value is in a less sustainable status. In order for this index value to increase in the future and achieve a more sustainable status, it is necessary to maintain the attributes that are sensitive and influential to the index value in the economic, social, and environmental dimensions.

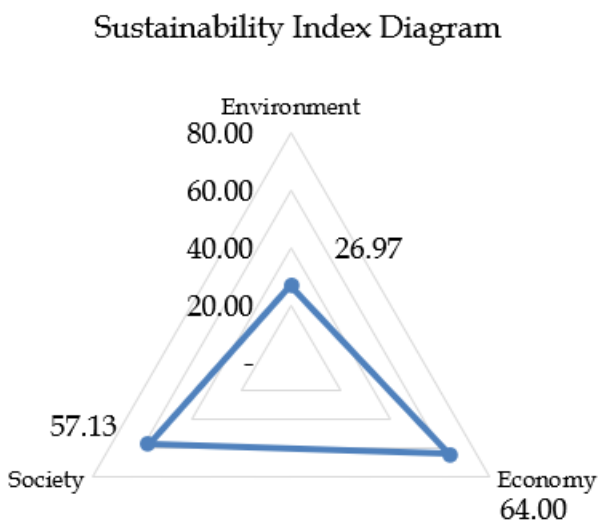

Figure 1. Sustainability diagram (primary data processed in 2025)

Environmental Sustainability Status

The results of the MDS analysis using *Rap-Agriculture* show that the environmental sustainability index value for the sustainability of Lembah Palu variety shallot farming in Sigi Regency from eight attributes is 26.97. This value indicates unsustainable results. The results of the sustainability index analysis are shown in Figure 2.

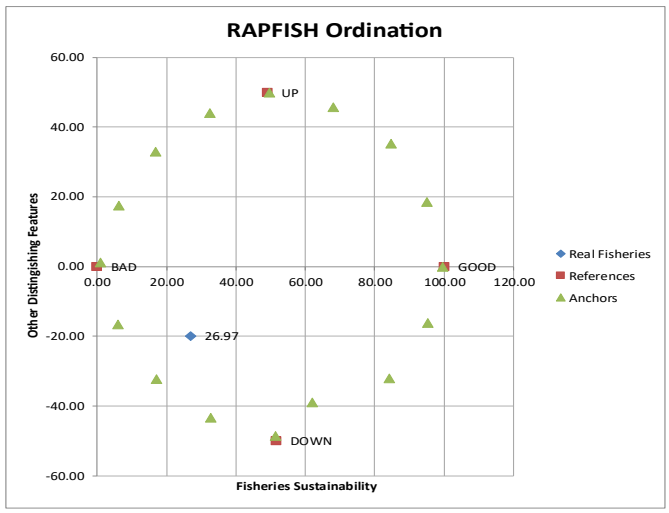

Figure 2. Rapfish *Ordination of* the Environmental Dimension (primary data processed in 2025)

Based on the environmental dimension *leverage* analysis, the three attributes most sensitive to the sustainability of Lembah Palu variety shallot farming in Sigi Regency are pest/disease intensity (RMS 9.10), erosion risk (RMS 6.54), and organic fertilizer use (RMS 5.77). First, pest/disease intensity (RMS 9.10) emerged as the most sensitive attribute in the environmental dimension. This high *leverage* score reflects how critical

pest attacks are to the productivity and sustainability of shallot farming. Pest control is an important factor in maintaining the sustainability of the agricultural ecosystem, because the intensity of pest and disease attacks can significantly reduce productivity if not balanced with integrated ecology-based management (Fontana et al., 2021; Nurjanani et al., 2022; Korlina et al., 2023). Uncontrolled pest attacks (such as onion caterpillars or thrips) or disease outbreaks (such as moler or leaf spots) can cause a significant decline in yield, even crop failure. This directly threatens the stability of farmers' incomes and the sustainability of farming. Therefore, integrated pest management, such as routine monitoring, the use of pest-resistant varieties, crop rotation, and the use of biological control agents, are key strategies that must be optimized to reduce yield losses.

Second, the risk of erosion (RMS 6.54) indicates a high level of sensitivity because shallot farming land, especially in areas with a certain slope, is prone to soil degradation. Erosion not only reduces soil fertility by removing nutrient-rich topsoil, but also decreases the land's capacity to retain water. This land degradation ultimately impacts long-term productivity and farming sustainability. Soil and water conservation efforts, such as terracing, planting ground cover, or implementing minimum tillage systems, are essential to mitigate this risk and maintain land carrying capacity.

Third, the use of organic fertilizers (RMS 5.77), despite having a lower *leverage* score than the previous two attributes, remains a key factor influencing ecological sustainability. The high sensitivity of this attribute indicates that the transition from synthetic chemical fertilizers to organic fertilizers is an important pillar in building soil health. Organic fertilizers play a role in improving soil structure, increasing organic matter content, and enriching soil microorganism diversity (Abebe & Sewnet, 2014; Bandh, 2021). In turn, healthy and fertile soil will increase nutrient use efficiency, plant resistance to stress, and sustainable shallot productivity. Therefore, increasing the adoption and application of organic fertilizers, whether in the form of manure, compost, or green manure, is a strategic step to reduce dependence on external inputs and improve the overall sustainability of farming.

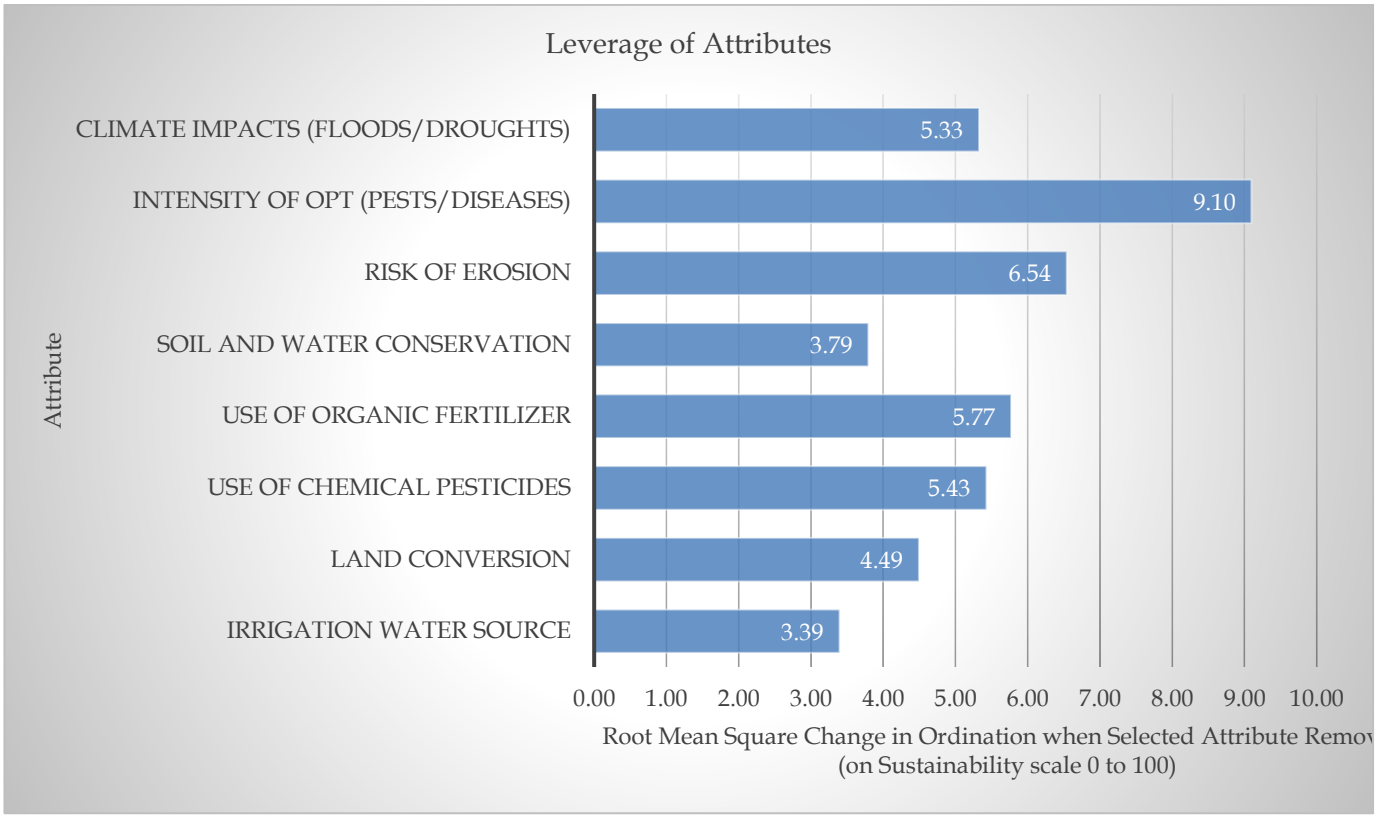

Figure 3. Environmental dimension leverage analysis (primary data processed in 2025)

Sustainability Status of the Economic Dimension

The results of the MDS analysis using *Rap-Agriculture* show that the economic dimension sustainability index value for Lembah Palu variety shallot farming in Sigi Regency from thirteen attributes is 64.00. This value indicates a fairly sustainable result. The results of the sustainability index analysis are shown in Figure 4.

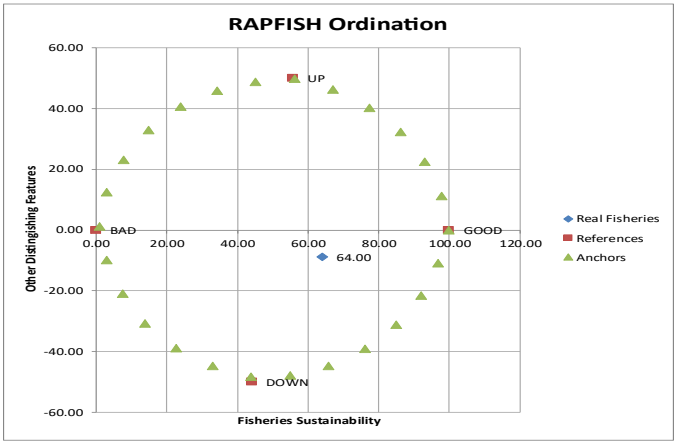

Figure 4. Rapfish *Ordination of* the economic dimension (primary data processed in 2025)

Based on the *leverage* analysis of the economic dimension, the three attributes most sensitive to the sustainability of Lembah Palu variety shallot farming in Sigi Regency are production costs compared to income (RMS 5.88), business income (RMS 4.03), and access to capital (RMS 3.88). First, production costs compared to income (RMS 5.88) emerged as the most sensitive attribute in the economic dimension. This high *leverage* score reflects how crucial production cost efficiency and income levels are for the survival of farming businesses. Healthy profit margins, which are determined by the balance between input costs (such as seeds, fertilizers, pesticides, and labor) and product selling prices, are the main determinants of financial sustainability. If production costs are uncontrolled or selling prices are unstable, the profitability of the business will be threatened, which in turn may force farmers to cease their farming activities. Therefore, cost control strategies, productivity improvements, and value-added creation are absolute priorities.

Second, business income (RMS 4.03) shows a high level of sensitivity because the net income earned by farmers directly affects their families' welfare and their ability to reinvest in their farming activities. Inadequate or fluctuating income will reduce farmers' incentives to continue farming shallots, encouraging them to change professions or convert their land. Increasing income through higher yields, improving product quality to obtain premium prices, and marketing chain efficiency are necessary strategic steps.

Third, access to capital (RMS 3.88), despite having a slightly lower *leverage* score, remains a key factor that hinders or promotes economic sustainability. Most shallot farmers in Sigi Regency still rely on independent capital to finance their farming activities. This capital generally comes from personal savings, proceeds from previous harvests, or family support. The use of self-financing means that farmers are not burdened by loan interest or credit repayment obligations that can put pressure on business cash flow. This allows flexibility in managing the production cycle without the pressure of payment deadlines. However, dependence on self-financing limits farmers' ability to invest in modern agricultural technology, such as the use of high-quality seeds, fertilizers, or agricultural machinery. As a result, productivity and production cost efficiency are relatively low compared to farmers who have access to external financing (Damaledo et al., 2018). Therefore, expanding farmers' access to formal financial institutions, small business loans with lenient terms, or group financing schemes is essential to ensure smooth operations and agricultural development.

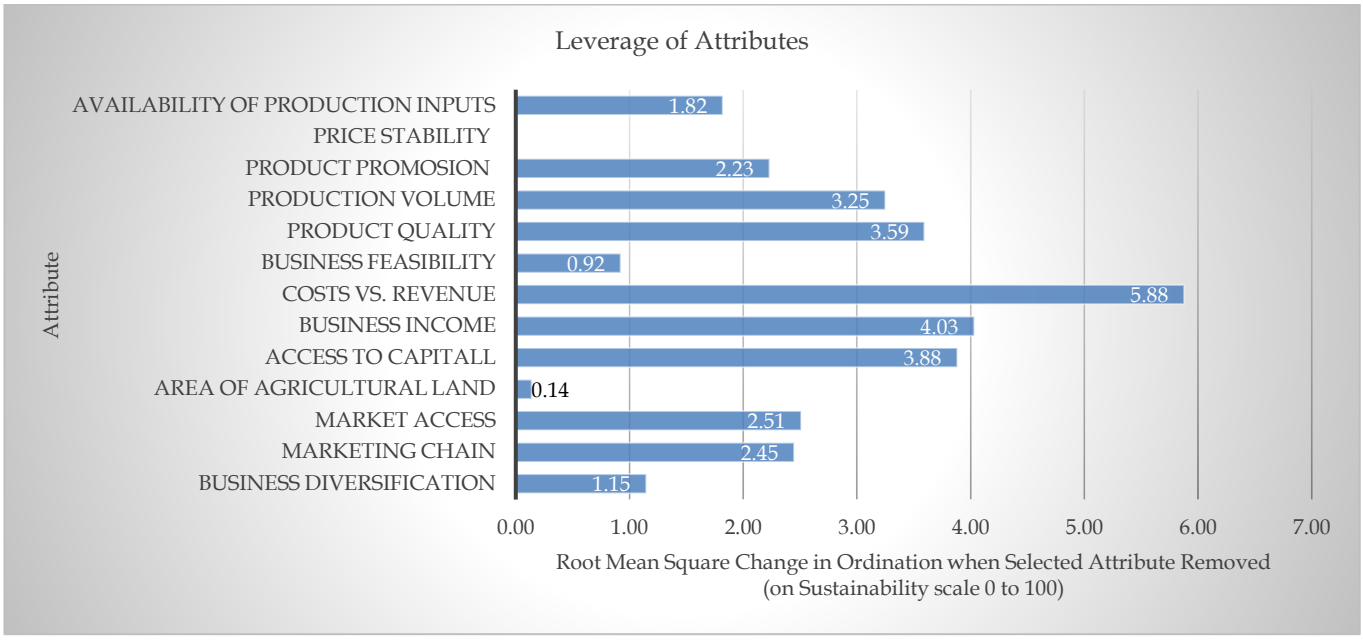

Figure 5. Analysis of economic dimension leverage (primary data processed in 2025)

Social Dimension Sustainability Status

The results of the MDS analysis using *Rap-Agriculture* show that the social dimension sustainability index value for the sustainability status of the Lembah Palu variety shallot farming business in Sigi Regency from nine attributes is 57.13. This value indicates a fairly sustainable result. The results of the sustainability index analysis are shown in Figure 6.

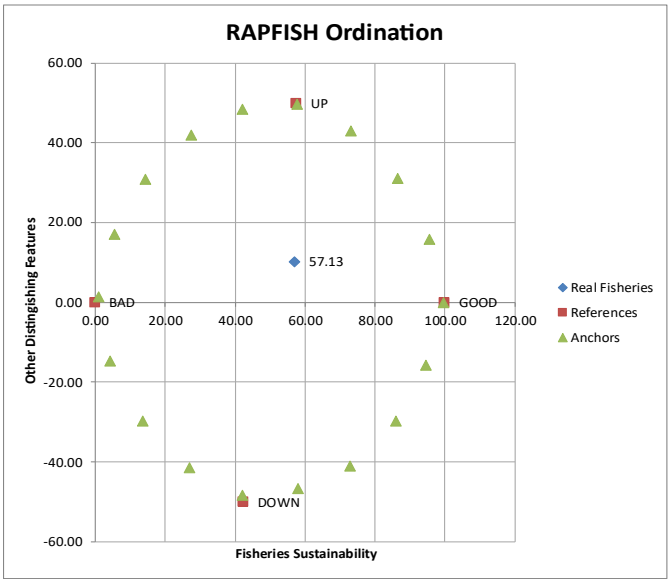

Figure 6. Rapfish Social Dimension Ordination (primary data processed in 2025)

Based on the social dimension *leverage* analysis, the three attributes most sensitive to the sustainability of Lembah Palu variety shallot farming in Sigi Regency are household welfare (RMS 6.17), farmer group activity (RMS 5.22), and land ownership status (RMS 3.92). First, household welfare (RMS 6.17) emerged as the most sensitive attribute in the social dimension. This high *leverage* score reflects that the ultimate goal of farming is to improve and maintain the standard of living of farming families. If shallot farming can contribute significantly to family income, meet basic needs, and provide financial security, then farmers' commitment to continuing their farming will be stronger. Conversely, if farming no longer guarantees welfare, the interest of the younger generation in continuing their parents' business will decline, threatening the long-term sustainability of farming. Therefore, strategies that focus on increasing the profitability of businesses in a sustainable manner are key to maintaining the welfare of farming households. A study in Malaka Regency states that improving the welfare of farmers is the ultimate goal of shallot development, and that business sustainability is highly dependent on the capacity of farmers to utilize capital and technology to increase income (Wahyudi, 2012; Muniroh et al., 2020; Leki et al., 2021).

Second, the activity of farmer groups (RMS 5.22) shows a high level of sensitivity because farmer group institutions serve as the backbone in strengthening farmers' bargaining position and capacity. Active farmer groups facilitate access to information, production inputs, training, and markets. Through groups, farmers can solve problems collectively, adopt innovations more quickly, and save costs through economies of scale. The inactivity of a group will weaken this social support, leaving farmers to face challenges alone and vulnerable to external pressures. Revitalizing the role of farmer groups through intensive assistance and strengthening management is a strategic step to build social resilience. In the study by (Bagheri, 2010; Mardiyanto, 2020; Asriadi et al (2024), the variable *of farmer participation* has a significant influence on the development of *shallot* farming, indicating that active farmer groups are able to create technological synergies, institutional support, and collective capacity building.

Third, land tenure status (RMS 3.92), despite having a lower *leverage* score, remains an important foundation for social sustainability. Certainty in controlling and managing land, whether through full ownership, leasing, or fair profit sharing, greatly affects farmers' motivation and long-term planning. Farmers with clear ownership status tend to have more incentives to invest in soil conservation and land fertility improvement efforts, as they are confident that they will enjoy the results in the future. According to Gautam & Ahmed (2019); Singirankabo & Ertsen (2020), certainty of land rights is an important prerequisite for agricultural sustainability because it provides farmers with a sense of security to make productive and conservative investments. Without such certainty, farmers tend to be *opportunistic*, pursuing short-term profits without regard for land sustainability, leading to land exploitation. Furthermore, according to Marindra et al (2018); Utami et al (2022), in the semi-organic shallot farming system in Bantul, land tenure security contributes to the social and economic stability of farmers. Farmers who own land tend to be more committed to sustainable agricultural practices such as crop rotation, use of organic fertilizers, and soil conservation, because farmers feel they have a long-term interest in the preservation of their resources. Conversely, for tenant farmers without land security, all farming activities are often *survival-oriented,* where farming is geared towards daily economic needs without sustainable investment planning.

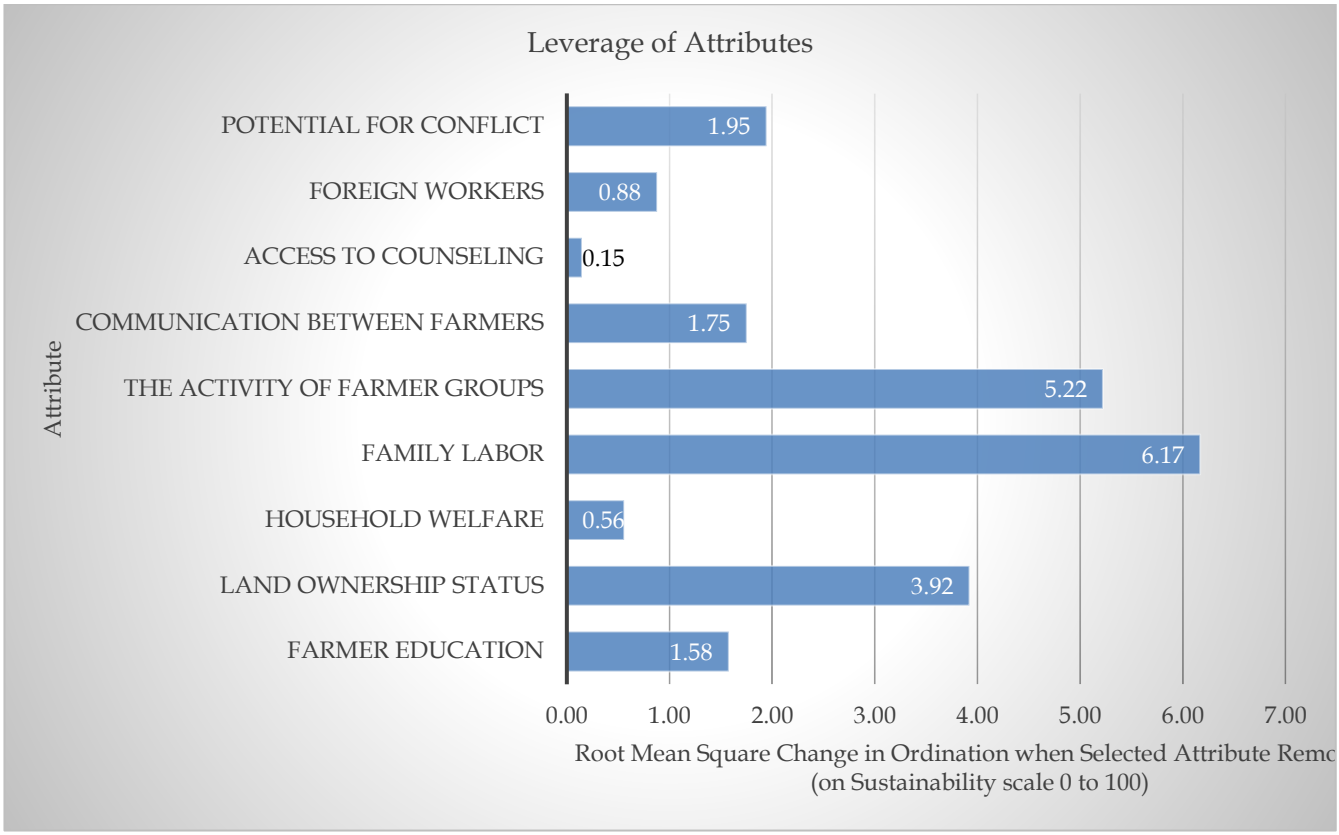

Figure 7 Analysis of social dimension leverage (primary data processed in 2025)

Monte Carlo Analysis

Fauzi (2019) explain that Monte Carlo Analysis serves to detect sources *of* error from data diversity. Errors in RAPFISH can occur due to several things, including: (1) the influence of attribute scoring errors caused by a lack of information, misunderstanding of attributes, or the method of attribute scoring; (2) the influence of scoring variations due to differences in opinion or assessment by different researchers; (3) the stability of the repeated MDS analysis process (unstable anchor position); (4) data entry errors or missing data; (5) high "stress" values in the analysis results. The detection of error sources was carried out by comparing the MDS index value with the Monte Carlo value. Table 6 shows a comparison of the sustainability index of the MDS results with the *Monte Carlo* results.

Table 6. Difference in index values between MDS and *Monte Carlo*

Dimension	Analysis Results		
	MDS Value (%)	*Monte Carlo* (%)	Difference (%)
Environment	26.97	28.59	1.62
Economy	64.00	62.60	1.40
Social	57.13	56.41	0.72

Source: Processed primary data (2025)

Based on the results of the Monte Carlo analysis, the differences between MDS and Monte Carlo in each dimension are relatively small, namely <5%. This indicates that the results of the sustainability analysis in the three dimensions of sustainability (environmental, economic, and social) have a relatively small scoring error rate, relatively small scoring variance, a stable analysis process, and have avoided missing data errors. Therefore, it can be concluded that the results of the sustainability analysis of the Lembah Palu variety shallot farming business in Sigi Regency have a high level of reliability.

Conclusion

The results of this study show that the sustainability status of Lembah Palu shallot farming in Sigi Regency is generally categorized as less sustainable, with an average sustainability index of 49.37%. This condition is mainly influenced by the low performance of the environmental dimension (26.97%), which reflects high levels of pest and disease attacks, soil erosion risks, and limited application of environmentally friendly farming practices. Meanwhile, the economic dimension is fairly sustainable (64.00%), indicating that shallot farming still provides economic benefits and remains an important source of household income, although it is constrained by high production costs and limited access to capital. The social dimension is also classified as fairly sustainable (57.13%), demonstrating that shallot farming

contributes to household welfare; however, farmer group institutions, participation, and land tenure security still need to be strengthened.

These findings suggest that sustainability of Lembah Palu shallot farming cannot rely solely on economic benefits but must be supported by environmentally sound practices and stronger social institutions. In a broader perspective, the results of this study can be generalized to similar horticultural farming systems in disaster-affected or vulnerable agricultural regions, where ecological fragility and institutional limitations remain key challenges to achieving long-term sustainability.

In practical terms, improving sustainability performance requires strengthening environmentally friendly cultivation technologies, particularly integrated pest management, soil and water conservation, and increased use of organic inputs. Economic strengthening is also necessary through improved access to capital, cost efficiency, and better market support. In addition, strengthening farmer organizations, enhancing capacity building, and ensuring clearer land tenure arrangements are essential to improve social resilience. The findings of this study serve as an important scientific basis for policymakers and stakeholders in formulating sustainability-oriented agricultural development strategies to ensure that Lembah Palu shallot farming remains competitive, resilient, and capable of supporting regional food security in the long term.

Acknowledgments
We would like to express our gratitude to the Universitas Tadulako for its assistance in supporting this research activity until it was published in a journal. Likewise, to all respondents involved in helping to obtain data and the local government.

Author Contributions
L.D., M.K.L., S.R.M.: Conceptualization, developing ideas, analyzing, writing, reviewing, responding to reviewers' comments; M.R., S.H.: analyzing data, overseeing data collection, reviewing scripts, and writing; O.E., M.K.: reviewing scripts, and writing.

Funding
This research received no external funding

Conflicts of Interest
The authors declare no conflict of interest.

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