

COMPARATIVE STUDY OF INCOME OF SWEET POTATO FARMERS' IN DIFFERENT TRADE CHANNELS IN BANDORASA WETAN VILLAGE, CILIMUS DISTRICT, KUNINGAN REGENCY

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Abstract

This study aims to analyze the income of sweet potato farmers in Bandorasa Wetan Village, Kuningan Regency, by comparing different trading channels, specifically sales to middlemen and direct sales to the processing industry. Sweet potato farming plays a crucial role in supporting local and national economies, with Kuningan being a major sweet potato production area in West Java. Using a quantitative comparative approach with survey techniques, data was collected from 83 farmers, with 49 selling to middlemen and 34 to the industry. The results show that the average income of farmers selling to the industry (IDR 3,468,222) is significantly higher than those selling to middlemen (IDR 2,812,569), as evidenced by the independent sample test ($p = 0.000$). However, income from industry sales shows greater variability. This research contributes by highlighting the income disparities across trading channels, offering valuable insights for farmers and stakeholders in optimizing trading practices to maximize profitability. Future research should explore factors influencing channel selection, including market conditions and trading strategies, to enhance the overall sustainability and profitability of sweet potato farming.

Keywords: Bandorasa wetan, Industry, Independent sample test, Income, Middlemen, Sweet potato

INTRODUCTION

Sweet potato is one of the agricultural commodities that has significant economic value and has a key role in supporting food security (Wulandari & Naully, 2022). Furthermore, Habib & Risnawati (2017) stated that sweet potatoes have the potential as a food diversification ingredient that can be processed into various products. The high market demand for sweet potato commodities can increase farmers' opportunities for profit, so sweet potato farming has an impact on the local and national economy. The development of sweet potato farming not only has the potential to increase food production but also strengthen the economy and improve the welfare of farmers (Novita et al., 2021).

Sweet potato are classified as plants that can grow in tropical and subtropical regions with altitudes between 0-1,500 meters above sea level (Arifin, 2018). In addition, sweet potatoes can grow well in areas with fertile, well-drained soil condition, moisture that is in accordance with the needs and appropriate acidity level so that the absorption of nutrients is maximized, so that it can affect sweet potato yields (Karuniawan et al., 2020).

Kuningan Regency has great potential for developing sweet potato farming because it meets the criteria for sweet potatoes to grow optimally and is also supported by trading conditions because it is classified as an agricultural area (Wulandari & Naully, 2022). The potential yield of sweet potatoes in Kuningan Regency can reach 25-30 tons per hectare. According to (Hidayat et al., 2023), sweet potato farming has become an integral part of the lives of farmers in Kuningan Regency and in several sub-districts it has become the main commodity.

Kuningan Regency is the largest sweet potato producer in West Java. According to data from the West Java Province Central Statistics Agency (BPS), sweet potato production in Kuningan Regency in 2021 reached 121,978 tons or around 24.9% of the total sweet potato

production in West Java Province of 489,920 tons. Sweet potato production in Kuningan Regency is produced by several sub-districts. Cilimus District has the highest contribution to sweet potato production in Kuningan Regency in 2021 with a total of 22,860 tons or around 18.7%.

Based on data from the Kuningan Regency Food and Agriculture Security Service (DKPP) in 2021, one of the sweet potato production centers in Cilimus District is Bandorasa Wetan Village. This village has the potential for annual production of up to 10,000 tons or contributes around 40-45% of the total sweet potato production in Cilimus District. This is characterized by a daily harvest of 25-50 tons or around 10-25 trucks per day distributing the sweet potato harvest.

Sweet potato farmers play a key role as suppliers of sweet potatoes so that these activities earn farmers income for the sustainability of their farming business. Marketing sweet potatoes is a source of income for farmers so that this can contribute to the local economy (Hardiani et al., 2021). Based on observations, the marketing of sweet potato harvests in Bandorasa Wetan Village consists of two patterns, namely sales through middlemen and direct sales to the processing industry. Middlemen buy sweet potatoes from farmers to sell to local markets and wholesale markets, while industry buys sweet potatoes to be used as raw material for processed products.

Selling through middlemen is generally carried out by farmers, middlemen are one of the institutions in the agricultural trading system. According to (Ratna et al., 2017) farmers sell their sweet potato harvests to middlemen without many procedures so that they can speed up the transaction and payment process. This process can create a more efficient environment in the sales chain. Then, farmers can sell sweet potatoes in large quantities, this creates a significant income opportunity. There are no special standards for sales to middlemen so that all harvests without restrictions on varieties and sizes can be sold so that farmers can sell in large quantities (Sandra et al., 2019). This condition gives farmers the opportunity to earn greater income.

Apart from that, farmers also sell sweet potatoes directly to the sweet potato processing industry in Bandorasa Wetan Village. This process can cut trading channels and enable farmers to increase their farming income. This sales process is usually when farmers provide information to the industry at harvest time or when the stock of raw materials owned by the industry is low, the industry usually looks for farmers who want to harvest sweet potatoes. The industry tends to provide better prices because they have a specific need for high quality raw materials in order to increase the added value of sweet potato commodities (Permata et al., 2023). In addition, long-term agreements can help farmers to plan planting times so that the harvest can be distributed to industry.

Sweet potato farmers are often faced with a dilemma in determining the most profitable marketing channels for farmers. Selling through middlemen may provide convenience to farmers by offering spread of risk and ease of distribution. This condition also causes farmers to become dependent on middlemen, giving rise to conditions of exploitation by middlemen against farmers (Wiyanti et al., 2023). This condition of exploitation is manifested in prices that tend to be low and sometimes detrimental to farmers (Sandra et al., 2019).

Farmers selling sweet potatoes to industry can be a more profitable alternative because they avoid selling to middlemen at lower prices. However, the industry tends to receive sweet potatoes in limited quantities (Permata et al., 2023). In addition, the payment process from industry tends to take longer because it involves complex processing and distribution stages (Dwica et al., 2022). The high prices given by the industry are considered to be compensation for the sweet potato criteria and payment terms which tend to be longer.

Based on the results of observations, it is known that the selling price from farmers to middlemen is Rp. 3,000/kg while the selling price from farmers to industry is Rp. 3,200/kg.

This price difference is due to differences in quantity and quality of each channel. Farmers sell sweet potatoes to middlemen and the industry has a direct impact on farmers' revenues and income. When farmers sell sweet potatoes to middlemen, they may have a higher quantity but a lower selling price. Middlemen apply lower standards and offer prices that are not always profitable for farmers. On the other hand, selling to industry may result in better prices, but industry tends to accept sweet potatoes in limited quantities with higher quality standards. Therefore, these differences create complex dynamics that affect farmers' income where they must consider trade-offs between volume, quality and sales value to optimize farmer income.

The aims of this research are: (1) to determine and analyze farmers' sweet potato farming income in different trading channels; and (2) to determine and analyze differences in farmers' sweet potato farming income in different trading channels. The research contributes by providing a detailed analysis of farmers' income from sweet potato farming across various trading channels. Specifically, it offers insights into how different trading mechanisms impact farmers' profitability, helping to identify which trading channels offer the most advantageous economic outcomes. Additionally, the study sheds light on the comparative income disparities between these channels, offering valuable data that can guide farmers, policymakers, and stakeholders in optimizing trading practices to maximize income. This research can also contribute to the development of more efficient agricultural supply chains and trading strategies.

RESEARCH METHOD

The location of this research is Bandorasa Wetan Village, Cilimus District, Kuningan Regency, West Java. The determination of the research location was formulated deliberately with the consideration that Bandorasa Wetan Village is the center of sweet potato production in Kuningan District with a contribution of 40-50%. The research was conducted from May to June 2024. The design of this research was quantitative comparative with survey research techniques.

The population of this study refers to DKPP data from Kuningan Regency, the number of sweet potato farmers in Bandorasa Wetan Village is 482 farmers, then samples were drawn using the Slovin formula:

$$n = \frac{N}{1 + N(e^2)}$$
$$n = \frac{482}{1 + 482(10\%)^2} = 82,8$$

The study consists of 83 farmers, with 49 selling to middlemen and 34 to industry, and uses SPSS 26.0 software for data analysis, with a proportional distribution.

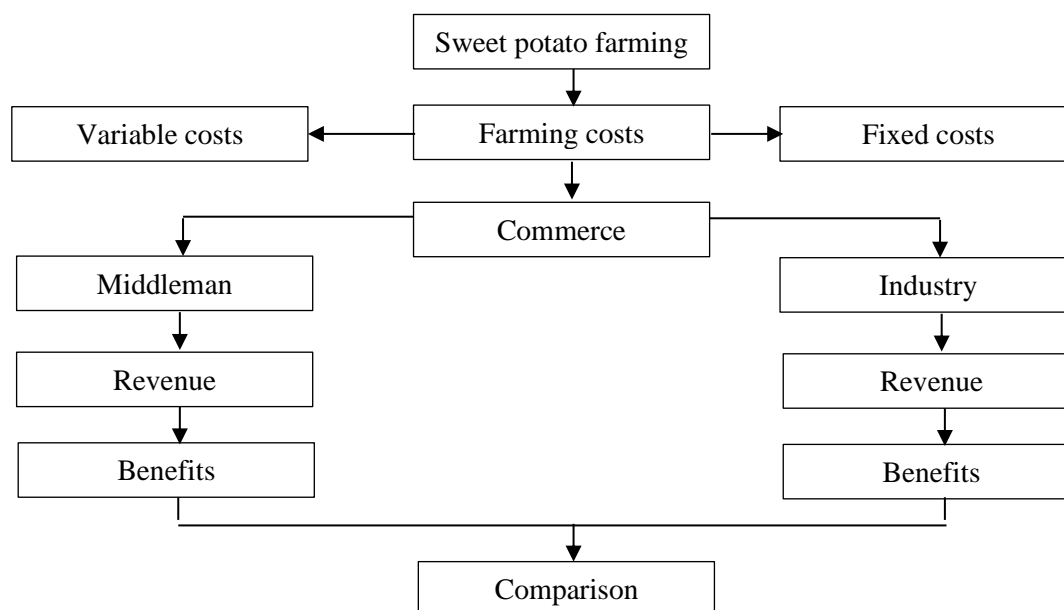


Figure 1. Framework of Thought

This framework of thought shows that this research compares farmers' income in different channels, between farmers who sell their crops to middlemen and to industry. The hypothesis in this research is "there are differences in sweet potato farming income in different channels".

RESULT AND DISCUSSION

General Description of Research Locations

Bandorasa Wetan Village is one of the villages in Cilimus District with an area of 1,781.68 km². The territorial boundaries of Bandorasa Wetan Village consist of (1) the northern border with Bojong Village; (2) to the south it borders Manis Lor Village; (3) to the east it borders Sangkanurip Village; and (4) to the west it borders Bandorasa Kulon Village.

Bandorasa Wetan Village is located at the foot of Mount Ciremai with an altitude of between 1,000-1,500 meters above sea level, the slope of the land is between 0-8%. The dominant soil type is an association of brown latosol and regosol with a pH of 5.5-6 with a relatively wet climate with an average rainfall of 2,500mm/year. The temperature ranges from 25°C-30°C. This region is classified as an agricultural area because the region has environmental characteristics that can support the development of the agricultural sector. Approximately 75% of land use for the agricultural sector in this region is used as agricultural areas.

One of the agricultural commodities commonly cultivated by farmers is sweet potatoes, so Bandorasa Village is known as a sweet potato production center. Sweet potato production in this region is classified as the highest compared to other regions in West Java. Farmers in Bandorasa Wetan Village have developed an efficient cultivation method so they are able to produce sweet potatoes in large quantities with consistent quality. Sweet potato production produced by farmers in Bandorasa Wetan Village every year can reach 10,000 tons so that it can meet local, regional and national market needs.

Sweet Potato Farming Production Factors

Sweet potato farming production factors are elements that can support the sweet potato cultivation process used by farmers. Production factors used include land, seeds, fertilizer, pesticides and labor. According to (Asmarantaka, 2017), effective use of production

factors can increase optimal production results, plant quality and increase water use efficiency.

Land

Land is the main production factor, namely as a place for crop production. Land area conditions can influence the use of other production factors. Analysis shows that using larger areas of land can increase sweet potato production significantly, namely when land area increases by 1%, production can increase by 1.33% (Wulan et al., 2022). The land area used by farmers is in Table 1.

Table 1. Sweet Potato Land Area

No	Land Area (m ²)	Number of Farmers (people)	Percentage (%)
1	2,700-3,470	14	16.87
2	3,480-4,250	45	54.22
3	4,260-5,000	24	28.92
	Total	83	100.00

Source: Research Results (2024)

The research results show that the minimum area of land used by farmers is 2,700m² while the maximum is 5,000m². Based on the class category, most farmers use land between 3,480-4,250m² with a total of 45 people or 54.22%. The land used for sweet potato farming has good productivity, this is characterized by production that tends to be high. Farmers in Bandorasa Wetan Village use effective land management techniques such as liming and optimal tillage.

According to (Al Hazmi, 2021) the liming process is a soil management technique that can help increase soil base saturation, making it important for the growth of sweet potato plants. Furthermore, optimal tillage techniques can increase crop production with better soil texture and suppress the growth of weeds which can interfere with nutrient absorption by plants (Jambak et al., 2017). Additionally, suppressing weed growth can reduce weed control costs.

Seedlings

Seeds are an important production factor because they are the main component in farming carried out by farmers. Selecting good quality seeds can support the success of sweet potato farming. Quality seeds have good adaptability to the land environment and have high resistance to pests and diseases so that growth and crop yields are optimal. Farmers' use of sweet potato seeds is in Table 2.

Table 2. Sweet Potato Seeds

No	Number of Seeds (Kg)	Number of Farmers (people)	Percentage (%)
1	12-16	38	45.78
2	17-20	36	43.37
3	21-25	9	10.84
	Total	83	100.00

Source: Research Results (2024)

The research results show that the minimum amount of sweet potato seeds used by farmers is 12 kg while the maximum is 25 kg. Based on the class category, most farmers use seeds between 12-16kg with a total of 38 farmers or 45.78%. The type of sweet potato variety

planted by farmers is classified as a local type, namely the brass variety. This variety has growing specifications that are suitable for the environment in Bandorasa Wetan Village so that its growth and results are better than other varieties. The brass variety has physical characteristics including: (1) bluish green stems and a diameter of between 1-2cm; (2) dark green leaves and oval shape with a length of between 10-15cm and a width of between 5-7cm; (3) moon-shaped white flowers between 1-2cm long; (4) blackish purple tubers and round in shape with a diameter of between 5-7cm; (5) the tuber skin has a hard texture and is blackish brown in color; (6) the flesh of the tuber is white and shaped like a cube with a size of between 2-3cm; and (7) white sweet potato rhizomes with a length of between 10-15cm.

Kuningan sweet potato variety is often chosen because it has high productivity, has a sweet taste, is round in shape, has resistance to high temperatures, has a high selling price and sustainable market demand (Hapsari et al., 2019). Furthermore, (Julianto et al., 2020) explained that the harvest time for brass sweet potato is classified as short because it can be harvested at 150 days so that it can speed up the investment period and farmers can get business income more quickly.

Fertilizer

Fertilizer is one of the production factors needed by plants as a source of nutrients that can support the growth and yield of sweet potato plants. The fertilizer used by farmers generally consists of chemical fertilizer and organic fertilizer. Chemical fertilizers are in granular form while organic fertilizers are in liquid form, so this can differentiate the application techniques (Tarigan, 2018). The chemical fertilizer used consists of Urea, SP₃₆ and Potassium fertilizer, the amount of fertilizer used is in Table 3.

Table 3. Sweet Potato Fertilizer

No	Amount of Fertilizer (Kg)	Number of Farmers (people)	Percentage (%)
1	145-182	18	21.69
2	183-220	41	49.40
3	221-258	24	28.92
	Total	83	100.00

Source: Research Results (2024)

The research results show that the minimum amount of fertilizer used by farmers is 145kg while the maximum is 258 kg. Based on the class category, most farmers use between 183-220kg of fertilizer with a total of 41 farmers or 49.40%. The amount of fertilizer used by farmers depends on the area they plant sweet potatoes. Generally, farmers in Bandorasa Wetan Village fertilize using chemical fertilizer once in one planting season using a spread application technique. This is done because farmers also use compost and organic liquid fertilizer as additional nutrition for plants, so that plant productivity remains good.

The use of chemical fertilizers has the positive impact of being absorbed more quickly by plants but also has a negative impact in the long term (Taisa et al., 2021). So, it is necessary to use organic fertilizer to balance the negative impacts caused by using chemical fertilizers (Wihardjaka, 2021). Organic fertilizer can improve soil quality and crop production. Organic materials can improve soil quality and plant production in a sustainable manner. Soil sustainability and sustainability of land functions are part of the land use plan as farming land (Akhmad, 2018).

Pesticides

The use of pesticides in sweet potato farming is one of the steps taken to manage pests and diseases that attack plants. Pesticides used by farmers are generally made from chemicals

that are effective in controlling pest and disease attacks. Proper pesticide application management can minimize the negative impacts that pesticides will cause (Yulia et al., 2020). The number of pesticides used by sweet potato farmers is in Table 4.

Table 4. Sweet Potato Pesticides

No	Amount of Pesticide (Kg)	Number of Farmers (people)	Percentage (%)
1	3-7	42	50.60
2	8-12	37	44.58
3	13-17	4	4.82
	Total	83	100.00

Source: Research Results (2024)

The research results show that the amount of pesticide used by farmers is at least 3kg while the maximum is 17kg. Based on the class category, most farmers use pesticides between 3-7kg with a total of 42 farmers or 50.60%.

Labor

Labor is needed in sweet potato farming at several stages of work with different activities. Labor availability is an important factor in sweet potato farming activities because conventional farming is still dominated by labor (Rompas et al., 2015). Labor is used in land processing, planting, maintenance and harvesting (Wulan et al., 2022). The role of mechanization in sweet potato farming is still supporting, such as the use of cultivators in the tillage process. Sweet potato farming workers are in Table 5.

Table 5. Sweet Potato Labor

No	Labor (HOK)	Number of Farmers (people)	Percentage (%)
1	61-79	15	18.07
2	80-97	43	51.81
3	98-115	25	30.12
	Total	83	100.00

Source: Research Results (2024)

The research results show that the minimum number of workers used by farmers is 61 people while the maximum is 115 people. Based on the class category, most farmers use labor between 80-97 people with a total of 43 farmers or 51.81%. This shows that sweet potato farming requires a large allocation of labor, which has an impact on labor costs. Farmers in Bandorasa Wetan Village use family labor, providing significant cost efficiency by reducing external labor costs.

Farmers in Bandorasa Wetan Village generally utilize a cooperation system between farmers to complete work on their fields. One of the cooperative systems is the mountain fall, where farmers will become farm laborers for other farmers by receiving payment. Apart from that, this mutual cooperation is also based on a system of bartering labor to do work on the sweet potato land with a balanced proportion of value. This condition also becomes local wisdom in the agricultural sector workforce aspect.

Farmers in Indonesia generally collaborate with each other to reduce production costs and increase income (Tiffany et al., 2023). This condition will also shape the social and economic structure of rural communities. Furthermore, (Susilowati, 2016) highlighted the institutional shift in wages carried out by small farmers, small farmers tend to have more free

time and this could be the reason they work for other farmers so that the wages they spend will circulate between farmers.

Farming Costs

Fixed Costs

Fixed costs are defined as costs that do not change with the volume of production at a certain time (Zaman et al., 2020). Fixed costs include costs that are required continuously during the production process, consisting of land rental costs and depreciation on investment in agricultural tools and machinery. The fixed costs affect the profitability of farming actors, so wise management can reduce the fixed costs incurred by individuals. (Marlina, 2017) The fixed costs of sweet potato farming can be seen in Table 6.

Table 6. Fixed Costs of Sweet Potatoes

No	Fee Type	Average (Rp)	Total of Fee (Rp)
1	Land lease	1,448,193	120,200,000
	Shrinkage:		
	a. Hoe	73,796	6,125,100
	b. Little hoe	34,546	2,867,300
	c. Sickle	32.102	2,664,500
2	d. Hand sprayer	194,345	16,130,667
	and. Harrow	29,435	2,443,100
	f. Bucket	23,342	1,937,400
	g. Water pump	350,757	29,112,833
	h. Water hose	64,253	5,332,958
	Total (Rp)	2,250,769	186,813,858

Source: Research Results (2024)

Fixed costs used by farmers average Rp. 2,250,769 with the highest cost required being land rental costs, namely Rp. 1,448,193. The land used by sweet potato farmers in Bandorasa Wetan Village is land rented from relatives, neighbors or friends. Strong social relationships among residents can facilitate this land leasing process, allowing farmers to access the land needed for sweet potato cultivation even if they do not own their own land. Through this rental system farmers can continue to carry out their agricultural activities with stability and support from the surrounding area, thus supporting the sustainability and productivity of sweet potato farming (Hapsari et al., 2019).

Fixed costs of farming other than land rental include depreciation costs on investment in agricultural tools and machinery. Agricultural tools and machinery are significant initial investments but their value will decrease with time and use. This depreciation is calculated as a fixed cost because these tools have a limited economic life and this depreciation cost needs to be taken into account in long-term financial planning in farming (Zaman et al., 2020).

Variable Costs

Variable costs in sweet potato farming refer to costs that change over time with changes in production levels (Zaman et al., 2020). Variable costs have an impact on profitability so that variable costs need to be used effectively and efficiently (Marlina, 2017). Furthermore, (Zaman et al., 2020) stated that variable costs tend to be easy to control and easy to track, so that farming actors can easily determine their amount because they are directly related to farming production activities. The variable costs incurred by sweet potato farmers can be seen in Table 7.

Table 7. Variable Costs of Sweet Potatoes

No	Fee Type	Average (Rp)	Total of Fee (Rp)
1	Seedlings	59,645	4,950,500
2	Fertilizer:		
	a. Urea	1,760,289	146,104,000
	b. SP ₃₆	805.325	66,842,000
	c. Potassium	538,795	44,720,000
	d. Compost	509,837	42,316,500
	e. Liquid Organic Fertilizer	116,970	9,708,500
3	Pesticide	317,361	26,341,000
4	Gas	959,759	79,660,000
5	Labor		
	a. Land Management	2,271,084	188,500,000
	b. Planting	1,540,241	127,840,000
	c. Maintenance	2,819,277	234,000,000
	d. Harvesting	2,267,470	188,200,000
6	Rent a Cultivator	1,001,205	83,100,000
	Total of Fee (Rp)	14,967,258	1,242,282,500

Source: Research Results (2024)

Variable costs used by farmers average Rp. 14,967,258 with the highest cost requirement being labor used for land processing, planting, maintenance and harvesting with an amount of Rp. 8,898,072. Sweet potato farming in Bandorasa Wetan Village is still managed conventionally so it requires more labor because the various stages of production still use human labor. This condition has an impact on higher labor costs.

Conventional farming systems still depend on manual labor at various stages of production from tillage to harvest. Based on data from the Central Statistics Agency (BPS) in 2021, it is confirmed that the agricultural sector is one of the largest absorbers of labor in Indonesia with around 29.46% of the total national workforce. Furthermore, (Malik, 2018) emphasized that high dependence on manual labor can lead to challenges such as fluctuations in labor availability, increasing labor costs and low worker productivity.

Sweet Potato Farming Income

Sweet potato farming income is the economic value generated from various activities in farming carried out by farmers. This economic value is obtained by calculating the difference between the total revenue obtained from the sale of harvested crops and all costs incurred during the production process. Revenue includes the value obtained from the sale of sweet potatoes. Farmers in Bandorasa Wetan Village sell their sweet potato harvest to middlemen and to the sweet potato processing industry. Then, total costs are the accumulation of fixed costs and variable costs in one production period (Zaman et al., 2020). Sweet potato farming income can be seen in Table 8.

Table 8. Sweet Potato Income

No	Units	Average	Total
1	Farming Costs	17,218,027	1,429,096,358
2	Reception	20,449,178	1,697,281,800
3	Income	3,081,150	255,735,442

Source: Research Results (2024)

The research results show that the average sweet potato farming income in Bandorasa Wetan Village is Rp. 3,081,150. The amount of farmer income is only 15.07% of revenue, this indicates that the percentage of income is still relatively small. Even though they can cover farming costs, farmers still have the opportunity to increase their income significantly. This increase in income can be achieved by adopting more efficient farming techniques so as to reduce production costs but increase crop yields.

Based on research conducted by (Hidayat et al., 2023) stated that sweet potato farming in Bandorasa Wetan Village is considered worthy of cultivation because it has good economic potential and income. Furthermore, (Amandasari & Nurmalina, 2014) stated that the potential for increasing sweet potato income can be done by intercropping with other agricultural commodities.

Comparative Analysis *Normality Test*

Table 9. Data Normality Analysis

Tests of Normality				
	Category	Kolmogorov-Smirnov^a		
		<i>Statistics</i>	<i>df</i>	<i>Sig.</i>
Sweet potato farming income	Middleman	,106	49	,200 [*]
	Industry	,103	34	,200 [*]

^{*}. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Source: SPSS v.26.0 output

The results of normality analysis using the Kolmogorov-Smirnov (KS test) showed that the significance value between farmers who sell to middlemen and to industry each got a value of 0.200, which means it is greater than 0.050, so it is included in the normally distributed data category.

Income Comparison

Table 10. Descriptive Statistics

Group Statistics					
	Category	N	Mean	Std. Deviation	Std. Error Mean
Sweet potato farming income	Middleman	49	2812569.16	397970.027	56852,861
	Industry	34	3468222.00	466311,376	79971,741

Source: SPSS v.26.0 output

The results of the analysis show that the average income of sweet potato farmers who sell to industry is Rp. 3,468,222 is greater than the income of farmers who sell to middlemen, namely Rp. 2,812,569. Judging from the standard deviation, farmers who sell to middlemen have more consistent income with smaller variations, namely Rp. 397,970. On the other hand, farmers who sell to industry experience greater fluctuations in income, namely Rp. 466,311 shows higher variation. A higher standard deviation for farmers who sell to industry indicates that there is the possibility of very high income compared to the group of farmers who sell to middlemen.

Then, independent sample test analysis of farmer income in different channels can be seen in Table 11.

Table 11. Comparative Test

		Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
Sweet potato farming income	Equal variances assumed	1,199	.277	6,877	81	.000	-655652,837	95338,101	-845345,753	-465959,921
	Equal variances not assumed			6,682	63,614	.000	-655652,837	98120,982	-851694,931	-459610,742

Source: SPSS v.26.0 output

The results of the analysis show that the significance value of Levene's Test for Equality of Variances is $0.277 > 0.050$, so it can be interpreted that the data variance between the middleman channel income group and the industrial channel income group is homogeneous (Suharsimi, 2013). Apart from that, the independent sample test in the Equal variances assumed column is $0.000 < 0.050$, so it can be concluded that H1 is accepted and H0 is rejected, and in terms of the calculated t value of $6.877 > 1.989$, thus there is a significant difference between the average income of farmers who sell their produce. harvest to industry and to middlemen. The Mean Difference value is -Rp. 655,652 which is the difference between the average income of the group of farmers who sell to middlemen and the group of farmers who sell to industry.

This difference in income is influenced by selling prices, market conditions and agreements in each channel. Farmers' income tends to be better when they sell their sweet potato harvest to institutions that have special specifications for the goods purchased (Hidayat et al., 2023). Furthermore, direct sales to the processing industry result in a higher share of farmers and lower marketing margins (Permata et al., 2023).

CONCLUSION

Sweet potato farming in Bandorasa Wetan Village involves farmers with brass seed varieties. The cost of farming is Rp. 17,218,027, with fixed and variable costs. On average, farmers earn IDR. 20,449,178 and Rp. 3,081,150, respectively. A significant difference in income exists between groups selling sweet potatoes to middlemen and industry. Future research should explore factors influencing trading channels, such as middlemen versus industry, decision-making processes, market accessibility, and potential barriers faced by farmers. Additionally, research should examine how different trading strategies, such as cooperatives or direct-to-consumer models, affect farmers' income and economic sustainability. Expanding the study to include government policies, market conditions, and technological interventions could provide a broader perspective on sweet potato farming profitability.

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