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Comparative Analysis of Sales Results of Hydroponic Vegetable Farmers of Lettuce (*Lactuca sativa* L.) between Conventional Method and Facebook Marketplace in Kendari City

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Abstract

This study is motivated by the differences in marketing strategies used by hydroponic farmers in selling lettuce (Lactuca sativa L.) in Kendari City. The development of digital technology has encouraged some farmers to use platforms such as Facebook Marketplace, while others still rely on conventional methods. The purpose of this research is to identify and analyze the differences in sales results between the two methods. This research employs a comparative quantitative approach with a total of 30 hydroponic farmer respondents. Data collection techniques include observation, questionnaires, documentation, and literature study. The data were analyzed using descriptive statistics and the Wilcoxon Signed Rank Test, as the normality test results indicated non-normal distribution. The results show that the average sales using the conventional method amounted to $40,677.67, which is higher than the Facebook Marketplace method at $24,777.67. The Wilcoxon test significance value was 0.002 (< 0.05), indicating a significant difference between the two sales methods. A total of 83.33% of respondents achieved higher sales results through the conventional method. Thus, the conventional method is proven to be more effective in increasing the income of hydroponic farmers in Kendari City, although Facebook Marketplace remains relevant as an alternative marketing channel in the digital era.

Keywords: Conventional Method, Facebook Marketplace, Hydroponics, Lettuce, Sales Results

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INTRODUCTION

Trade in the modern era has undergone significant transformation in line with the development of digital technology. The buying and selling system, which previously relied on direct interaction, has now shifted to a digital-based trading model (e-commerce), which allows transactions to be carried out without space and time limitations. E-commerce opens up wider market access through digital platforms such as websites and marketplaces, thereby increasing efficiency and global market reach (Dewi et al., 2022).

One of the digital innovations in the field of commerce is Facebook Marketplace, which was first introduced in 2007 by Facebook Inc (now META). This platform allows businesses to market their products and services effectively by utilizing a vast social network. To date, more than 450 million people are recorded to be buying and selling through Facebook Marketplace every month (Ku, 2016). With the number of Facebook users in 2023 reaching 2.25 billion worldwide and 135 million in Indonesia (Annur, 2023), this platform is a strategic opportunity for businesses to expand their market and increase sales.

However, conventional marketing methods such as traditional markets, shops, and kiosks still dominate, especially in the agribusiness sector. Data from the Central Statistics Agency (2023) shows that 41.51% of businesses in Indonesia have implemented e-commerce, while 58.49% still use conventional methods. This phenomenon is relevant in the context of research comparing the effectiveness of digital marketing through Facebook Marketplace with conventional methods, especially for agricultural products.

Lettuce (Lactuca sativa L.) is one of the horticultural products with high demand at both the household and food industry levels. Based on data from the Central Statistics Agency, lettuce production in Indonesia shows an upward trend every year.

Table 1. Lettuce Production in Indonesia from 2020 to 2023

Year	Production (Tons)
2020	656,931
2021	715,977
2022	748,595
2023	757,150

This increase in production reflects growing demand and support for the agricultural sector. However, the characteristics of agricultural products, which are perishable, seasonal, bulky, and heterogeneous, require more efficient marketing strategies (Anindita, 2004).

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In Kendari City, conventional marketing methods still dominate the agricultural sector, including hydroponic lettuce commodities. In fact, Southeast Sulawesi ranks 30th out of 38 provinces in the use of e-commerce for marketing agricultural products (Central Statistics Agency, 2023). This indicates low adoption of digital technology in the region. In fact, Kendari hydroponic lettuce has a potential market, both for household consumption, restaurants, and mining companies operating in Morosi and Morowali (Musyafir, 2024).

The Kendari City Government has launched the Kendari iPreneur program through the Department of Trade, Cooperatives, and SMEs to improve the skills of business actors in utilizing digital technology. However, its implementation still faces challenges, such as limited understanding of digital marketing strategies and low adaptation to platforms such as Facebook Marketplace (Idham, 2023).

This situation shows a gap between the great opportunities offered by digital marketing and the reality that most farmers still rely on conventional methods. Therefore, it is important to conduct research that analyzes the comparison of hydroponic lettuce sales through Facebook Marketplace and conventional methods in Kendari City, so as to provide an overview of the effectiveness of both methods in supporting the sustainability of agricultural businesses.

METHOD

This research was conducted in Kendari City, Southeast Sulawesi, considering that this city has a developing agricultural market, broad access to information technology, including the use of Facebook Marketplace as a marketing tool, and there are hydroponic businesses that market lettuce (Lactuca sativa L.) both conventionally and online, allowing for a relevant comparison of income. This study lasted for three months, from May to July 2025.

The population in this study was all hydroponic farmers in Kendari City who cultivate and sell lettuce, both through conventional methods and through digital platforms such as *Facebook Marketplace*. Based on the results of observations and direct data collection in the field, the number of farmers in the population and sample that met these criteria was 30 people.

The data collection techniques in this study included observation, which involved directly observing the lettuce sales activities of hydroponic farmers both through Facebook Marketplace and conventional methods; questionnaires, which were distributed to respondents to obtain information about sales results, production volume, and sales volume; documentation, which was used to collect secondary data related to the sales of hydroponic lettuce in Kendari City; and literature studies as a theoretical basis and scientific reference to support the research.

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To answer the first and second research questions, namely to determine sales results through Facebook Marketplace and conventional methods, quantitative descriptive analysis was used in the form of calculating the average (mean) sales results obtained by farmers from each method. The formula used to calculate the average sales results according to Sugiyono (2019) is as follows:

$$\bar{X} = \frac{\sum X}{n} \text{ .....(1)}$$

Explanation:

$\bar{X}$= Average sales results

$\sum X$= Total sales

n = Number of respondents

Data processing and analysis were performed using SPSS *(Statistical Package for the Social Sciences)* software. Sales data from each respondent was analyzed using the Descriptive Statistics feature in SPSS, which includes calculating the mean, minimum and maximum values, and *standard deviation.* Meanwhile, to answer the third problem formulation, namely to determine whether there is a difference in sales results between the two methods, a *paired sample* t-*test* was used, because the data came from the same respondents but was tested under two different conditions (two sales methods).

RESULTS AND DISCUSSION

Lettuce Production and Sales Volume

Frequency distribution is used to determine the distribution of lettuce production and sales data from hydroponic farmers in Kendari City. According to Soekartawi (2002), frequency distribution is a statistical method that is useful for seeing patterns of distribution and trends in data, especially in the field of agribusiness. The analysis results show that most farmers produce between 200 and 299 kg of lettuce per month, with the highest frequency in the 200–249 kg group (23.3%). For sales through Facebook Marketplace, the majority of farmers sell 50–79 kg per month, while conventional methods show the highest distribution in the 130–169 kg per month interval (26.7%). The frequency distribution of the production and sales data of hydroponic lettuce by 30 farmers in Kendari City can be seen in Table 2.

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Table 2. Frequency Distribution of Lettuce Production per Month by Hydroponic Farmers in Kendari City in 2025

Interval Class (kg)	Frequency (Number of Farmers)
100 – 165	8
166 – 232	9
233 – 299	8
300 – 365	2
366 – 432	2
433 – 499	1

Production distribution shows that most farmers produce lettuce in the range of 100–299 kg per month. A total of 25 out of 30 farmers (83%) are in this range. This indicates a relatively small to medium scale of production.

Lettuce sales through Facebook Marketplace show considerable variation, but most farmers only sell in the medium range (146–335 kg) and some still sell in the low range (<145 kg), as shown in Table 3. According to Soekartawi (2003), the marketing of agricultural products depends not only on production but also on market access, knowledge of marketing strategies, and the speed of responding to consumer demand. In the digital context, the success of marketing is influenced by the ability of farmers to utilize social media and establish communication with consumers, so that the low sales volume on Facebook Marketplace indicates that the use of digital media is not yet optimal. Meanwhile, conventional sales are mostly in low volumes (20–49 kg) but are still higher in aggregate than Facebook Marketplace, even though this system still has obstacles in the form of dependence on middlemen, low profit margins, and limited distribution networks. Thus, although conventional methods contribute significantly to total sales, not all farmers are able to achieve high volumes due to limited networks and bargaining power.

Table 3. Frequency distribution table of monthly sales volume using conventional methods and Facebook Marketplace for hydroponic farmers in 2025

Interval (Kg/Month)	Frequency of Conventional Method (People)	Frequency of FB Method Marketplace (People)
20-49	1	17
50-144	11	8
145-335	18	4
336-526	-	1

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Sales Results of Hydroponic Lettuce through Two Methods

Based on the results of descriptive analysis using SPSS version 25, it is known that the average sales of hydroponic lettuce through Facebook Marketplace from 30 respondents was Rp 3,426,666.67 with a minimum value of Rp 800,000 and a maximum of Rp 16,000,000, with a standard deviation of IDR 3,287,901.89. The median sales of IDR 2,000,000 indicate that more than half of the respondents earned less than that amount. The skewness value of 2.745 indicates a right-skewed data distribution, which means that there were several respondents with very high sales results that affected the average value. This condition is in line with Kotler and Keller's (2016) view that digital marketing through social media can expand market reach and accelerate product distribution, although the level of success varies greatly among farmers.

Meanwhile, the descriptive analysis results for conventional sales methods show average sales of IDR 5,986,666.67 with a standard deviation of IDR 2,689,408.77. The lowest sales value recorded was IDR 2,000,000 and the highest was IDR 12,000,000, with a median of IDR 5,600,000, which is relatively close to the average, thus describing a more symmetrical data distribution. The skewness of 0.846 still shows a rightward tendency, but not as extreme as the distribution on Facebook Marketplace. With a range value of IDR 10,000,000, the conventional method still shows variation, albeit more concentrated. This finding is in line with Anindita's (2004) opinion that direct distribution through traditional markets or stores has the advantage of building interaction with consumers, but tends to be limited to certain areas, so the potential for increased revenue is more constrained than digital marketing.

Distribution of Lettuce Sales Frequency Based on Two Methods

Frequency distribution is used to describe the distribution of farmers' income data from lettuce sales through two methods, namely Facebook Marketplace and the conventional method, in order to understand the income pattern in more detail. According to Soekartawi (2016), frequency distribution not only facilitates the presentation of data in a structured tabulation but also helps interpret complex data, making it relevant in agribusiness analysis to identify groups of farmers with high, medium, or low incomes. The analysis results show that income through Facebook Marketplace has a greater distribution with a positive skewness of 2.745, indicating that there are some farmers with incomes much higher than the majority of others, while the conventional method tends to show a more even distribution. The frequency distribution of lettuce sales through both methods can be seen in the table below.

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Table 4. Frequency Distribution of Lettuce Sales Results Using Two Methods

Frequency Distribution of Lettuce Sales Results via *Facebook Marketplace* Method	**Sales Result Interval (Rp)**	**Frequency (People)**	**Percentage (%)**
	< 2.000.000	12	40%
	2.000.000 – 3.999.999	7	23,3%
	4.000.000 – 5.999.999	4	13,3%
	6.000.000 – 7.999.999	3	10%
	8.000.000 – 9.999.999	2	6,7%
	≥ 10.000.000	2	6,7%
Frequency Distribution of Lettuce Sales Using the Conventional Method	Income Interval (Rp)	Frequency (People)	Percentage
	2,000,000 – 3,499,999	4	13,3%
	3,500,000 – 4,999,999	6	20%
	5,000,000 – 6,499,999	10	33,3%
	6,500,000 – 7,999,999	5	16,7%
	8,000,000 – 9,499,999	3	10%
	≥ 9,500,000	2	6,7%

From the descriptive results in the table above, it can be seen that the conventional method has a higher average income compared to the *Facebook Marketplace* method. The average income from conventional lettuce sales is IDR 5,986,666.67, while from *Facebook Marketplace* it is only IDR 3,426,666.67. The data distribution in the *Facebook Marketplace* method also shows a skewness of 2.745 and a kurtosis of 7.937, which indicates a peaked and asymmetrical data distribution. This shows that there are some farmers who have managed to earn far above average income. Meanwhile, the conventional method has a lower skewness of 0.846 and negative kurtosis (-0.030), indicating a more normal and even distribution. Thus, each method has its own advantages. The conventional method is more stable and evenly distributed in terms of income generation, while *Facebook Marketplace* has the potential for high income but with a high risk of variation. This comparison will be discussed further in the statistical testing in the next section, using the Paired t-test if the data is normally distributed, or the Wilcoxon test as an alternative if the data is not normally distributed (Sugiyono, 2019).

Data Normality Test

The data normality test aims to determine whether the distribution of data on the sales of hydroponic lettuce by farmers in Kendari City is normally distributed or not. This normality test was conducted using the Shapiro-Wilk test, in accordance with the opinion of Sugiyono (2019)

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with a total of 30 respondents (n < 50), because the Shapiro-Wilk test is more accurate for small sample sizes than *the Kolmogorov-Smirnov test.* The following are the results of the normality test using SPSS version 25 *for Mac:*

Table 5. SPSS version 25 output for data normality test

Variable	Kolmogorov-Smirnov Sig.	Shapiro-Wilk Sig.
Facebook Marketplace Sales Results	0.000	0.000
Conventional Sales Results	0.004	0.012

For the Facebook Marketplace Sales Results variable, the Shapiro-Wilk significance value is 0.000 (< 0.05), indicating that the data is not normally distributed. For the Conventional Sales Results variable, the Shapiro-Wilk significance value is 0.012 (< 0.05), so the data is also not normally distributed. Thus, it can be concluded that both sales result variables, whether through Facebook Marketplace or conventional methods, are not normally distributed.

Implications of Normality Test

Based on the results of the normality test, because the data is not normally distributed, the sales comparison test cannot use parametric tests such as the paired t-test. Therefore, in accordance with Sugiyono (2019), a nonparametric test, namely *the Wilcoxon Signed Rank Test,* is used to test the difference in sales between the *Facebook Marketplace* method and the conventional method. The following are the results of the *Wilcoxon Signed Rank Test* using SPSS 25 *for Mac*:

Table 6. SPSS version 25 output of *the Wilcoxon Signed Rank Test*

Sales Results of Two Methods	N	Mean Rank	Sum of Ranks
Negative Ranks	5	16.90	84.5
Positive Ranks	25	15.22	380.50
Ties	0		
Total	30		

Based on the results of the Wilcoxon Signed Rank Test, a significance value of 0.002 was obtained, which is less than 0.05. According to Sugiyono (2019), if the significance value is < 0.05, it can be concluded that there is a significant difference between the two groups of data being compared. Therefore, it can be concluded that there is a difference in sales results between the

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conventional method and the *Facebook Marketplace* method, where the conventional method generates higher sales for most hydroponic farmers in Kendari City.

A total of 25 respondents (83.33%) had higher sales results using the conventional method compared to the Facebook Marketplace method, while 5 respondents (16.67%) had lower results. There were no respondents who had the same sales results using both methods.

Therefore, statistically, it can be stated that the conventional method provides better sales results than the Facebook Marketplace method for hydroponic farmers in Kendari City.

CONCLUSION

Based on the results of research comparing the sales results of hydroponic lettuce farmers between the Facebook Marketplace method and the conventional method in Kendari City, it was found that sales through Facebook Marketplace still show relatively low results. This is influenced by limited market reach, low consumer confidence in online transactions, and farmers' limited skills in utilizing social media as a marketing tool. This condition indicates that the use of Facebook Marketplace is not yet fully optimal in supporting increased sales of hydroponic lettuce.

Meanwhile, sales of lettuce through conventional methods tend to be higher. Farmers earn higher gross income due to the ease of reaching consumers directly, the personal relationships that develop between farmers and consumers, and the fact that people are more comfortable with face-to-face transactions. This pattern of interaction adds value in building consumer confidence in the quality of the products being sold.

Furthermore, based on the results of the Shapiro-Wilk normality test, it was found that the sales data from both methods were not normally distributed. Therefore, the Wilcoxon Signed Rank Test was conducted, which produced a significance value of 0.002 (<0.05). These results indicate a significant difference between the Facebook Marketplace method and the conventional method, where the majority of hydroponic farmers obtained higher sales results through the conventional method compared to the digital method.

Based on the results of this study, it is recommended that hydroponic farmers in Kendari City continue to optimize conventional sales methods to increase sales, especially to large consumers such as restaurants, frozen food stores, and the mining sector, while maintaining the use of digital platforms such as Facebook Marketplace as an additional alternative to expand market reach and respond to future changes in consumer behavior. In addition, further research is expected to involve additional variables such as promotional costs, customer loyalty, and market demand trends in order to obtain a more comprehensive analysis.

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