

**INCOME ANALYSIS OF WATER SWEETENER FARMING AT DESA PENKASE -
OELETA, KECAMATAN ALAK, KOTA KUPANG. A CASE STUDY OF EL LABORA
FARMING GROUP**

**(Analisis Pendapatan Budidaya Pemanis Air Di Desa Penkase - Oeleta, Kecamatan Alak, Kota
Kupang. Studi Kasus Kelompok Budidaya El Labora)**

Matelda Febiati Olivia Ello¹, Santhy Chamdra², Bayu Mahendra³

^{1,2,3} Departemen Agribisnis, Fakultas Pertanian, Universitas Nusa Cendana ²Lecturer of

Corresponding Author: ellotelda@gmail.com

Received: 9th February, 2026

Accepted: 19th February, 2026

ABSTRACT

This research has been conducted at the El Labora Farmers Group in Penkase - Oeleta Village, Alak District, Kupang City from April 2025 until completion. The purpose of this study was to determine the income of kale farming in the El Labora Farmers Group in Penkase - Oeleta Village, Alak District, Kupang City to find out the feasibility of kale farming in the El Labora Farmers Group in Penkase - Oeleta Village. The research location is Penkase - Oeleta Village, Alak District, Kupang City, which was done intentionally because the location is one of the centers of kale production. The determination of respondents in this study was carried out saturated, meaning that all members of the population were used as respondents. In this case, the population in question is kale farmers who are members of the El Labora Farmers Group in Penkase - Oeleta Village, Alak District, Kupang City, which totals 20 people. The results of the study showed that the average income of kale farmers was Rp. 221. 771 per month. The feasibility of water spinach farming in the El Labora Farmers Group in Penkase-Oeleta Village is indicated by the R/C ratio of 1.80. This value means that every Rp1.00 spent can generate revenue of Rp1.80. Thus, water spinach farming is declared feasible because it provides benefits to farmers.

Keywords: Income Analysis, Kangkun Farming, El Labora Farmers Group, Penkase-Oeleta, Kupang

ABSTARK

Penelitian ini telah dilakukan di Kelompok Petani El Labora di Desa Penkase - Oeleta, Kecamatan Alak, Kota Kupang sejak April 2025 hingga selesai. Tujuan penelitian ini adalah untuk mengetahui pendapatan budidaya kale di Kelompok Petani El Labora di Desa Penkase - Oeleta, Kecamatan Alak, Kota Kupang, serta untuk mengetahui kelayakan budidaya kale di Kelompok Petani El Labora di Desa Penkase - Oeleta. Lokasi penelitian adalah Desa Penkase - Oeleta, Kecamatan Alak, Kota Kupang, yang dilakukan secara sengaja karena lokasi tersebut merupakan salah satu pusat produksi kale. Penentuan responden dalam penelitian ini dilakukan secara jenuh, artinya seluruh anggota populasi digunakan sebagai responden. Dalam hal ini, populasi yang dimaksud adalah petani kale yang merupakan anggota Kelompok Petani El Labora di Desa Penkase - Oeleta, Kecamatan Alak, Kota Kupang, yang berjumlah 20 orang. Hasil penelitian menunjukkan bahwa pendapatan rata-rata petani kale adalah Rp. 221.771 per bulan. Kelayakan budidaya kangkung di Kelompok Petani El Labora di Desa Penkase-Oeleta ditunjukkan oleh rasio R/C sebesar 1,80. Nilai ini berarti setiap Rp1,00 yang dikeluarkan dapat menghasilkan pendapatan sebesar Rp1,80. Dengan demikian, budidaya kangkung dinyatakan layak karena memberikan keuntungan bagi petani.

Kata kunci: Analisis Pendapatan, Budidaya Kangkung, Kelompok Petani El Labora, Penkase-Oeleta, Kupang

INTRODUCTION

Indonesia is an agrarian country whose economy relies heavily on specific sectors, such as agriculture, as this sector plays a crucial role in the overall national economy. The agricultural sector also plays a crucial role in alleviating poverty, both directly and indirectly, due to its relationship with the provision of food, employment, raw materials for industry, and foreign exchange earnings through agricultural exports.(Soekartawi, 2017).

Water spinach is a popular vegetable among all levels of society and has made a significant contribution to improving the economy of farmers. Water spinach is a seasonal vegetable with a short lifespan and doesn't require extensive cultivation. Besides its delicious taste, water spinach is also high in nutrients, including vitamins A, B, and C, as well as various minerals, especially iron, which are beneficial for growth and health.(Haryoto, 2019);(Yudha et al., 2025).This is due to the wide variety of vegetables grown. However, water spinach production in some regions fluctuates and even tends to decline. According to data from the East Nusa Tenggara (NTT) Provincial Agriculture Office, water spinach production in Kupang City declined from 2019 to 2023. This decline is believed to be due to several factors, including changes in farmer cropping patterns, increased diversification of vegetable commodities, limited land, and technical aspects of cultivation and marketing. These conditions can impact the availability of supply and the income of water spinach farmers in the area. The decline in water spinach production requires serious attention, given the commodity's crucial role in meeting public consumption needs and as a source of income for farmers. Therefore, a more in-depth study is needed to examine the factors influencing water spinach production and farming development in Kupang City. This analysis is expected to provide a clear picture of the current situation and serve as a basis for formulating strategies to increase production and farmer welfare. Based on this description, this study aims to analyze the factors influencing water spinach production and assess possible efforts to increase production and income for water spinach farmers in Kupang City.

Table 1. Water Spinach Production in Kupang City (2019-2023)

Year	Water Spinach Production in Kupang City (quintal)
2019	6.133
2020	4,234
2021	97
2022	69
2023	85

Source: BPS Kupang City, 2023

Penkase-Oeleta Village is an area in Kupang City where the majority of the population is engaged in horticultural farming, including water spinach. This agricultural area boasts good market access, with easy access to city markets and convenient transportation. The open access to urban life encourages farmers to cultivate crops and market their produce in the city. Although this area is part of Kupang City, the local community still relies on traditional agriculture for their livelihood. Several springs and pump wells are used by farmers to irrigate their vegetable crops.

RESEARCH METHOD

This research was conducted at the El Labora Farmers Group in Penkase – Oeleta Village, Alak District, Kupang City from April 2025 until completion. The data collected in this study were primary and secondary data. Primary data is the type of data collected directly from its primary source obtained from the survey method through observation, documentation and direct interviews with respondent farmers guided by a list of questions provided. While secondary data was obtained from the Village Office, Agricultural Extension Center, Central Statistics Agency (BPS) and other literature

related to the research title. The determination of the research location was done intentionally (Purposive Sampling), namely choosing Penkase – Oeleta Village as the research location with the consideration that the location is an area that develops a lot of kale farming in Kupang City and is easy to reach so that it can facilitate researchers in collecting data. According to Astuti et al., (2019) Saturated sampling is a sampling technique where all members are sampled. In this study, the population is all 20 members of the EL Labora Farmers Group. The sampling technique used in this study was saturated sampling, where the entire population in this study was sampled, namely 20 people.

1. To answer the first objective, namely to determine the income from water spinach farming in the El Labora Farmers Group in Penkase Oeleta Village, Alak District, Kupang City, the following data analysis techniques were used:

- 1) The total production costs incurred in water spinach farming use the formula according to Soekartawi, (2017), that is:

$$TC = TFC + TVC$$

Information:

TC = Total Cost (Rp)

TFC = Total fixed costs (Rp)

TVC = Total Variable Cost (Rp)

- 2) The amount of revenue is calculated using the formula according to Chozin & Mahmudin, (2024), that is :

$$TR = PXQ$$

Information:

TR = Total Revenue (Rp)

P = Price (Rp)

Q = Production Quantity

- 3) Income is calculated by subtracting total revenue from total costs, using the formula according to Suratiyah, (2016), as follows:

$$I = TR - TC$$

Information:

I = Farm business income (Rp)

TR = Total revenue (Rp)

TC = Total cost (Rp)

2. To answer the second objective, namely to determine the feasibility of water spinach farming in the El Labora Farmers Group in Penkase-Oeleta Village, Alak District, Kupang City, the R/C ratio approach was used, namely the comparison between the amount of income and total costs. The R/C ratio can be calculated using the formula (Wijaya et al., 2025) as follows :

$$(R/C) \text{ Ratio} = TR/TC$$

Information:

R/C Ratio = Comparison between revenue and costs

TR = Total revenue

TC = Total cost

RESULTS AND DISCUSSION

This research was conducted in Alak District, Penkase-Oeleta Village, Kupang City, with an area of 86.91 km² and an altitude of 120 meters above sea level. Administratively, Alak District consists of 35 neighborhood units (RT) and 8 neighborhood units (RW). In this study, the sample was one of the farmer groups, namely the El Labora Farmer Group. In this study, age is one factor that can influence the physical abilities and mindset of farmers in managing their businesses. In addition, age is also closely related to the work ability of farmers in viewing their business activities. Age can be used as a benchmark in seeing someone at work if the working conditions are still good and optimal. (Surahman & Ernah, 2024); (Azi et al., 2024). The productive age of farmers are those who

are between 15 and 58 years old.(Soeharjo & Patong, 2024).

Table 2. Distribution of Respondents Based on Productive, Non-Productive, and Unproductive Age in the El Labora Farmers Group

No	Age	Number (of Souls)	Percentage (%)
1	<15	0	0
2.	15-58	8	40
3.	>58	12	60

Source: Processed Primary Data, 2025

Table 2 shows that the average age of water spinach farmers in the El Labora Farmers Group is within the unproductive age range, with a percentage of 60%, or 12 people. The number of dependents referred to in this study is the number of family members living in one house, where their needs are covered by the head of the household, including husband, wife, children, and other people who live and reside in the family. The number of dependents in the family will affect the cost of living. The greater the number of dependents, the greater the family's expenses.(Halim, 2020);(Maulidiansyah & Naully, 2025).

Table 3. Distribution of Respondents Based on Family Dependencies

No	Family Dependencies (Year)	Number of Respondents (People)	Percentage(%)
1	<15	0	0
2.	3-4	16	80
3.	5-6	4	20

Source: Processed Primary Data, 2025

Based on Table 3, the average number of dependents in the El Labora Farmers Group ranged from 3-4 people (80%), while the number of dependents was 5-6 people (20%). This indicates that respondents' family size was relatively small. Education can significantly influence a person's mindset. Farmers with a higher educational background tend to have a more progressive mindset than those with a lower educational background.

Table 4. Distribution of respondents based on the education of water spinach farmers in Penkase-Oeleta Subdistrict

No	Level of education	Number of Respondents (People)	Percentage(%)
1	Elementary School	13	65
2.	JUNIOR HIGH SCHOOL	5	25
3.	SENIOR HIGH SCHOOL	2	10

Source: Processed Primary Data, 2025

Based on Table 4, showing the educational level in this study, the majority of respondents had an elementary school education (SD), namely 13 people or 65% of the total respondents. Furthermore, respondents with a junior high school education (SMP) numbered 5 people or 25%. Meanwhile, the level of senior high school education (SMA) was the lowest, namely 52 people or 10%.

Table 5. Distribution of Water Spinach Farmers Based on Farming Experience

	No Farming Experience (Years)	Number of Respondents (People)	Percentage (%)
1	1-10	7	35
2	11-20	11	55
3	21-30	1	5
4	>30	1	5

Source: Processed Primary Data, 2025

Table 5 shows that the majority of respondents have between 11 and 20 years of farming experience, namely 11 people, or 55%. Respondents with 1–10 years of experience numbered 7 people, or 35%. Meanwhile, respondents with 21–30 years of experience and more than 30 years each had only 1 person, or 5%.

Analysis of Water Spinach Farming Costs of the El Labora Farmers Group

Costs are the nominal amounts incurred in the production process to produce a product and generate profit or revenue. Costs in this study include fixed and variable costs. Fixed costs are costs whose size is not affected by product output and continue to be incurred even when production is not taking place.(Rico, 2023);(Indriani, 2019). The fixed costs calculated are the depreciation costs of the tools used in the production process. The tools observed include hoes, machetes and buckets, each of which shows varying depreciation values, according to the characteristics of use and their economic life with a fixed cost of Rp 931,250 with an average cost per respondent of Rp 46,563. or an average land expansion of Rp 35,891 per are and a fixed cost of Rp 4,758,238 with an average of Rp 118,956 or an average per land area of Rp 14,246 per are. Thus, the total cost is Rp 16,745,738 per planting season with an average cost per respondent of Rp 418,643 per respondent or an average per land area of Rp 50,137 per are.

Table 6. Total Costs of Water Spinach Farming for the El Labora Farmers Group

No	Description	Total cost per planting season (Rp/Mt)	Average per respondent
1	Variable Cost (VC)		
	Seed	400,000	20,000
	Workforce (Men & Women)	1,733,333	86,667
	Fertilizer	2,500,000	125,000
	Total Variable Costs		
2	Fixed Cost (FC)	200,000	10,000
	Hoe	200,000	10,000
	machete	281,250	14.0625.5
	Bucket	450,000	22,500
	Total Fixed Costs		
3	Total Cost (VC+FC)	5,564,583	278,230

Source: Processed Primary Data, 2025

The calculation results in table 6 above present the total depreciation costs and the average depreciation costs of each type of tool used in the production process. The tools observed include hoes, machetes, and buckets, each of which shows varying depreciation values, according to the characteristics of use and their economic life. Revenue is the result of the amount of production

multiplied by the selling price. Based on the research results, the total production obtained by kale farmers in Penkase Village in one planting season is 50,000 per plot. Thus, it is known that the total income of farmers per planting season is Rp. 10,000,000 with an average income per farmer of 1,000,000.

Based on the income analysis, it shows that the total costs incurred by kale farmers in the El Labora Farmers Group during one production cycle reached Rp. 5,564,583 with an average per respondent of Rp. 278,230, consisting of fixed costs of Rp. 931,250, and variable costs of Rp. 4,633,333. Meanwhile, income during one production period reached 10,000,000 with an average income per respondent of Rp. 500,000, thus the total income was Rp. 4,435,417 with an average per respondent of Rp. 221,771 per respondent, which was obtained from total income minus total production costs.

To determine the feasibility of water spinach farming in the El Labora Farmers Group, an analysis can be made using the R/C ratio approach. If the R/C ratio is >1 , then the water spinach farming is considered feasible. Conversely, if the R/C ratio is <1 , then the farming is not feasible. If the R/C value is 1, then the farming is at the break-even point. The R/C ratio indicates whether a business is profitable, break-even, or unprofitable. (Soeharjo & Patong, 2024); (Zulfiana et al., 2023) To determine the feasibility of water spinach farming in the El Labora Farmers Group, please see the following table:

Table 7 Feasibility of Water Spinach Farming Business for El Labora Farmers Group

No	Description	Total Cost (Rp)	Average per respondent
1	Total Revenue (TR)	10,000,000	500,000
2	Total Cost (TC)	5,564,583	278,230
3	R/C Ratio	1.80	1.80

Source: Processed Primary Data, 2025

Based on the research results, the total costs incurred in farming activities reached Rp. 5,564,583, with an average of Rp. 278,230 per respondent. These costs consisted of fixed costs of Rp. 931,250 (an average of Rp. 46,563 per respondent) and variable costs of Rp. 4,633,333 (an average of Rp. 231,667 per respondent).

CONCLUSIOM AND RECOMMENDATION

1. Conclusion

Based on the results of the analysis of water spinach farming and the description in the discussion, it can be concluded that the water spinach farming in the El Labora Farmers Group is as follows:

- 1) The income received from the water spinach farming business in the El Labora Farmers Group reached Rp. 4,435,417 or an average of Rp. 221,771 per respondent.
- 2) The feasibility of water spinach farming in the El Labora Farmers Group in Penkase-Oeleta Village is demonstrated by the R/C ratio of 1.80. This value means that every Rp1.00 spent generates Rp1.80 in revenue. Thus, water spinach farming is considered feasible because it provides benefits to farmers.

2. Recommendation

- 1) For Water Spinach Farmers
Farmers are advised to increase the efficiency of production costs, especially variable costs such as fertilizer and labor, to optimize income. Furthermore, farmers can utilize simple cultivation and irrigation technologies to reduce high labor costs. Research on water spinach focuses on optimizing cultivation through the use of Liquid Organic Fertilizer (POC) at a dose of 1 ml/L, hydroponic techniques using rice husk charcoal or coconut fiber, and

utilizing it as a phytoremediator to absorb heavy metals and ammonia. Variations in irrigation times, pest control, and comparative studies of media types are also recommended.

2) For the Government:

Support in the form of counseling and technical assistance on proper kale cultivation and farm cost management is needed. The government is also expected to help expand market access and stabilize kale prices so that farmers can achieve more stable profits.

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