International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

Economic Analysis Of Leafy Vegetable Farming In Tawiri Village, Teluk Ambon Subdistrict, Ambon City

Vilicia jovanca lakalay[1], August.E. Pattiselano[2] J.M. Luhukay[3]

[1,2,3]Department of Socio-Economics, Faculty of Agriculture, Pattimura University,Indonesia

Corresponding Author: luhukayjohanna@gmail.com

Abstract

Purpose this study aims to analyze the income and feasibility of leafy vegetable farming in Tawiri Village. The vegetables analyzed include water spinach (kangkung), mustard greens (sawi), and spinach (bayam). The sample was selected purposively, consisting of 37 farmers out of a total population of 112 leafy vegetable farmers in Tawiri Village, Teluk Ambon District, Ambon City. The data used includes both primary and secondary data. Methodology the study employs income analysis, cost analysis, and farming feasibility analysis using the R/C ratio (Revenue-Cost Ratio) and comparison with land rental costs. Results the research findings show that the average income from leafy vegetable farming in Tawiri Village is Rp 2,735,972.59 per planting season, with an R/C ratio of 3.63. This means that every one rupiah of production cost generates revenue of Rp 363.000. Findings farmers in Tawiri Village cultivate a wide variety of leafy vegetables, such as water spinach, mustard greens, and spinach. Novelty this study was conducted specifically on farmers in Tawiri Village using not only income analysis but also a comprehensive feasibility assessment (including R/C ratio). Originality the research uses recent data obtained through direct interviews and field observations. Conclusion the farmers' income is proven to be higher than the land rental cost. Thus, leafy vegetable farming in the area is considered feasible and profitable for development.

Keywords: Farming, Income, Feasibility, R/C Ratio

INTRODUCTION

Agriculture is divided into several subsectors, one of which plays an important role in the economy—namely, the horticulture subsector. One type of horticultural crop that can be

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

developed is vegetables. Several types of vegetables are widely cultivated in Indonesia, including tomatoes, eggplants, shallots, potatoes, and cabbage (Directorate General of Horticulture, 2015).

Horticultural crops consist of seasonal and perennial crops. Seasonal horticultural crops generally have a short lifespan (less than one year), with harvesting done once or several times in one planting cycle. In contrast, perennial horticultural crops have a lifespan of more than one year, and harvesting can be done more than once per planting cycle. Commodities produced by horticultural farming activities include vegetables, fruits, medicinal plants (biofarmaka), and ornamental plants (Gross Regional Domestic Product, 2019).

In Ambon City,Tawiri Village is an area with strong potential for vegetable farming development. Tawiri Village has significant agricultural potential, supported by favorable agroclimatic conditions and the availability of resources, which facilitate the growth of horticultural crops. Therefore, vegetable farming has become one of the sectors with strong potential to improve community income. However, in general, vegetable farmers in Tawiri Village have not carried out detailed income or cost calculations in their farming activities, which is one of the main reasons for conducting this research in the area.

Income levels are influenced by various complex factors, both internal and external. Internal factors include age, education level, and land area owned by the farmers, while external factors include the availability of production inputs and market prices. Farming activities undertaken by farmers are expected to increase their income so that their daily living needs can be met (Suratiyah, 2009).

METHOD

RESEARCH LOCATION

This research was conducted in *Tawiri Village*, located in *Teluk Ambon District*, which was purposively selected as the research site. The area was chosen due to the relatively high number of vegetable farmers in the region. The research was carried out over a period of one month.

Data Collection Methods

In data collection techniques, it is essential to understand the procedures for gathering the necessary information or data for a research study. By comprehending the steps in data processing, the researcher can accurately achieve the research objectives and answer the research questions. Data collection techniques are generally divided into four methods:

1. **Observation**

   A data collection technique involving direct observation of events or conditions.

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

2. **Questionnaire**
   Data is collected from respondents by submitting a set of pre-prepared questions, either open-ended or closed-ended.
3. **Interview**
   Data is collected through interviews with sources or informants to obtain detailed information.
4. **Documentation**
   Data is collected by analyzing documents such as books, archives, reports, and photographs related to the research.

Sampling Technique

Vegetable farming in Tawiri Village is practiced throughout the year, making it one of the key vegetable production centers in Teluk Ambon District. According to district-level data, there are 112 vegetable farmers in Ambon City. Based on this population, the number of samples was determined proportionally using the Slovin formula:

$$n = \frac{NZ^2S^2}{ND^2 + Z^2S^2}$$

Where:

n = sample size
N = population size
S^2 = sample variance (5% = 0.05)
Z = confidence level (90% = 1.64)
D = margin of error (5% = 0.05)

Substituting values into the formula:

$$n = \frac{112 \times (1{,}645)^2 \times (0{,}05)}{112 \times (0{,}05)^2 + (1{,}645)^2 \times 0{,}05}$$

$$n = \frac{15{,}1414}{0{,}4153}$$

$$n = 36{,}46$$

$$= 37$$

Therefore, the total number of respondents taken as samples is 37. Sampling was conducted using the Simple Random Sampling method

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

Data Analysis

The analytical methods used to process the research data include farm income analysis and household welfare level analysis, following Suratiyah (2008).

1. **Farm Income Analysis**

   $$I = TR - TC$$

   Where:

   I = Income

   TR = Total Revenue

   TC = Total Cost

2. **Farm Cost Analysis**

   $$TC = TFC + TVC$$

   Where:

   TC = Total Cost

   TFC = Total Fixed Cost

   TVC = Total Variable Cost

3. **Revenue Calculation**

   $$TR = Q \times P$$

   Where:

   TR = Total Revenue

   Q = Quantity of production

   P = Selling price

4. **Feasibility of Vegetable Farming**

   The feasibility of vegetable farming is assessed using the R/C ratio and comparison to land rental costs. This determines whether the farming activity is profitable and feasible to run. The formula for R/C ratio is:

   $$R/C = \frac{\text{Total Revenue (TR)}}{\text{Total Farming Cost(TC)}}$$

   Where:

   R/C = Return to Cost Ratio

   TR = Total Revenue (Rp/Ha)

   TC = Total Farming Cost (Rp/Ha)

   Interpretation of R/C Ratio:

- **R/C > 1** → The farming activity is profitable.
- **R/C < 1** → The farming activity incurs losses (costs exceed revenue).

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

- **R/C = 1** → Break-even point (no profit, no loss).

RESULTS AND DISCUSSION

Farm Cost Analysis

According to Soekartiwi (2002), farm cost analysis examines how individuals allocate available resources effectively and efficiently with the objective of generating profit within a certain period. The allocation is considered effective if farmers (producers) are able to make optimal use of the resources they possess, and efficient if the utilization of those resources results in output that exceeds the input. The components of farming costs include fixed costs and variable costs.

Table 1 Average Fixed and Variable Farming Costs in Tawiri Village, Teluk Ambon District, in the Year 2025.

Fixed Cost	**Average Total (IDR)/Mt**
Land Rent	216.216,22
Equipment Depreciation Cost	168.162,55
Total Fixed Cost	384.378,77
Variabel Cost	Total Biaya (IDR)/Mt
Seed Cost	172.226,22
Fertilizer Cost	355.675,68
Pesticide Cost	170.675,68
Total Variabel Cost	698.567,57

The table above shows that the average fixed cost in Tawiri Village is IDR 384,378.77 per planting season. This fixed cost is derived from land rental fees and equipment depreciation costs. The average land rental fee for vegetable farming in Tawiri Village is IDR 216,216.22 per planting season, based on data collected from 37 vegetable farmers.

The lowest average depreciation cost is associated with watering heads, at IDR 3,534.97**.** All farmers in Tawiri own this tool, as it is essential in the vegetable cultivation process. Meanwhile, the highest depreciation cost comes from the cultivato**r**, with an average depreciation cost of IDR 1,049,044.01, also based on data from 37 farmers.

The average variable cost of farming activities is IDR 698,567.57, which is broken down into Seed costs: IDR 172,226.22, Fertilizer costs: IDR 355,675.68, Pesticide costs: IDR 170,675.68

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

In vegetable farming in Tawiri Village, three types of leafy vegetables are cultivated: kangkung (water spinach), sawi (mustard greens), and bayam (spinach). For seeds: Kangkung seeds are purchased at IDR 38,000/kg, with 2–5 kg required per planting season, depending on the farmer's land size, Sawi seeds are purchased at IDR 27,000/kg, with 1–3 kg used per season. Notably, 6 farmers opted to propagate sawi seeds themselves, Bayam seeds are purchased at IDR 25,000/kg, with 1–3 kg used per season, also depending on land area.

For fertilizer, the average cost is IDR 355,675.68 per planting season. Farmers in Tawiri Village typically use manure, urea, and Phonska fertilizers:Manure: IDR 35,000 per sack, Urea: IDR 140,000 per sack, Phonska: IDR 140,000 per sack

For pesticides, the average cost is IDR 170,675.68, with commonly used products including: Curacron: IDR 145,000 per bottle, Antracol: IDR 140,000 per bottle, Carcron: IDR 150,000 per bottle, Klensek: IDR 30,000 per bottle, Demolish: IDR 60,000 per bottle

Income and Revenue Analysis

Income Description	Average Value (bundle)
Water Spinach Production	181
Mustard Greens Production	144
Spinach Production	169
Production cost (Py) (Rp)	10.000
Revenue (TR=Y.Py)	3.818.918,92/Musim Tanam
Details	Average Value (IDR)
Total Revenue (TR)	3.818.912,92
Total Production Cost (TC)	1.082.946,33
Income (I =TR-TC)	2.735.972,58

Based on the table above, the average revenue earned by vegetable farmers in Tawiri Village is IDR 3,818,918.92 per planting season. The average production per season is as follows: Kangkung (water spinach): 181 bunches, Sawi (mustard greens): 144 bunches, Bayam (spinach): 169 bunches Each type of vegetable is sold at a price of IDR 10,000 per bunch.

Therefore, the average total revenue per season is IDR 3,818,918.92. Given the total average production cost of IDR 1,082,946.33, the average net income (profit) obtained by farmers is IDR 2,735,972.58 per planting season. The findings indicate that the balance between

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

production costs and income has a significant impact on the viability of vegetable farming. The higher the production cost incurred, the lower the income received. Conversely, if production costs are minimized, farmer income has the potential to increase.

Farm Feasibility Analysis Based on R/C Ratio and Land Rental Costs Relative to Income

Details	Amount Per Farm (IDR)
Revenue (TR)	3.818.918,92
Total Cost (TC)	1.082.946,33
Feasibility R/C	3,63

The table above presents the feasibility calculation of vegetable farming based on the R/C (Return to Cost) ratio, which is obtained by comparing total revenue (the amount earned from vegetable sales within a given period) with total cost (all expenses incurred for production and marketing). The resulting R/C ratio is 3.63**.** This value indicates that vegetable farming in Tawiri Village is profitable**,** as every IDR 1.00 spent yields a return of IDR 3.63**.** This aligns with the interpretation of farm feasibility, which states that R/C > 1 means the farming activity is profitable and feasible to develop. Additionally, farmers in Tawiri Village are considered to be making a profit because their net income exceeds the cost of land rental**,** further affirming the viability and profitability of the farming practices in the region.

CONCLUSION

Based on the research conducted in Tawiri Village, Teluk Ambon District, Ambon City, the following conclusions can be drawn:

1. Farmers in Tawiri Village have an average income of IDR 2,735,972.59.
2. The resulting R/C ratio is 3.63. This value indicates that vegetable farming in Tawiri Village is profitable, as every IDR 1.00 spent generates a return of IDR 363.000

REFERENCE

Ashari, U. (2020, November). *Income and feasibility analysis of corn farming in Patilanggio District, Pohuwato Regency, Gorontalo Province*. In Proceedings of the National Seminar on Agricultural Development and Vocational Education, **1**(1).

Azzura, D., Marsudi, E., & Usman, M. (2017). Income analysis of vegetable farming and its

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.

influencing factors in Darussalam District, Aceh Besar Regency. *Scientific Journal of Agricultural Students of Unsyiah*, **2**(3), 92–105.

Central Bureau of Statistics. (2013). *Definition and concepts of population*. In: *Indonesia Statistics 2013*. Jakarta: Central Bureau of Statistics.

Central Bureau of Statistics. (2023). *Results of the Agricultural Census by District, Ambon City*.

Directorate General of Horticulture. (2015). *Horticultural production statistics 2014*. Ministry of Agriculture, Jakarta.

Hanafie, R. (2010). *Introduction to agricultural economics*. Yogyakarta: ANDI Publisher.

Prasetyowati. (2016). *Definition of farm income*. [Unpublished manuscript].

Gross Regional Domestic Product. (2019). *Horticultural crops of Ambon City*. [Statistical report].

Purba, D. W., Thohiron, M., Surjaningsih, D. R., Sagala, D., Ramdhini, R. N., Gandasari, D., ... & Manullang, S. O. (2020). *Introduction to agricultural science*. Kita Menulis Foundation.

Soekartawi. (1995). *Farm analysis*. Jakarta: Rajawali Press.

Soekartawi. (2002). *Definition of farm analysis*. Faculty of Agriculture, Hasanuddin University, Malang.

Soetikno, R. (2023). *Definition of farmer*. [Unpublished or institutional document].

Sulistiya, & Sofwani. (2022). *Definition of farm income*. [Unpublished manuscript].

Suratiyah, K. (2008). *Farm management science*. Penebar Swadaya.

Suratiyah, K. (2009). *Farm management science*. Jakarta: Penebar Swadaya.

Suratiyah, K. (2015). *Farm management science* (Revised edition). Penebar Swadaya Group.

Yan, R. (2012). *Feasibility analysis*. [Unpublished manuscript].

Copyright to the author of some rights reserved This work is licensed under aCreative Commons Attribution-ShareAlike 4.0 International License.