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ANALYSIS OF FARMERS INCOME SELLING IN SUCO LOUR ZUMALAI ADMINISTRATIVE POST-COVALIMA MUNICIPALITY

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ABSTRACT

The research aims to analyze farmers' income selling Corn in Suco Lour, Zumalai Administrative Post, Covalima Municipality. The research employs descriptive methods, utilizing a simple random sampling technique to select a sample of 100 farmers from the population. The data collection involves three methods: interviews, which facilitate direct communication with the farming community; observation to witness farming activities firsthand; and questionnaires designed to gather structured information. The researcher analyzed with the results of counting through economic analysis equipment, responded with significant results as follows: (i) the total number of farmer family members responded in fifty (50), discovered farmers Secondary Education with its minimum frequency of two (2) people, 4 percent, discovered non-alphabetic farmers got the highest frequency of twenty-one (21) people, with 42%. (ii) The impact of technology on productivity: Investigate how the adoption of modern agricultural technologies influences corn production efficiency and income levels among farmers. The study highlights the factors influencing earnings, including production costs, market access, and pricing strategies. This research can inform policymakers and agricultural stakeholders about the economic challenges faced by local farmers, guiding the development of targeted interventions to enhance profitability and sustainability in the agricultural sector. Furthermore, the findings may serve as a basis for further studies on income diversification and agricultural practices in similar regions, ultimately contributing to improved livelihoods for farming communities.

INTRODUCTION

Corn is the main food for the people of Timor-Leste, which is the main type of food for the community to be consumed by the population of Timor-Leste through customary processes such as mash, grind, cooking and cooked between wheat and mixed with sugarcane to consume. but wheat is not only food for us humans but also as food for animals such as wheat and barley. East Timor has + 600,000 ha. for agricultural potential, in 2012 the area of cultivation is 80,443 hectares which can result in production of 101,85818 tons, an average production of 1.26 tons. Not only looking at the potential of food production but also importantly with other agricultural sub-sectors such as; livestock, forestry and horticulture can also increase productivity for communities that will have subsistence systems. Through government programs with the objective of increasing agricultural production and reducing imports, the government helps and facilitates production goods such as

seeds, pest medicines, and tractors to help farmers increase production (Department of Agriculture of Timor-Leste, 2012).

Covalima Municipality encompasses seven administrative posts and covers an area of 1,206.66 km², characterized by a tropical and sub-tropical climate. The majority of the population engages in farming, particularly corn cultivation, which provides significant income for both families and the country. Suco Lour, located in the Zumalai Administrative Post, boasts fertile soil conducive to various agricultural activities, including horticulture, forestry, and livestock farming. Despite limited access to modern technology, farmers often focus on market-oriented production rather than subsistence farming (Kubitza et al., 2024; Ma et al., 2024; Madsen, 2022; Ume, 2023; J. Zhang et al., 2021). Cultivation is viewed as an organization of nature, labor, and capital aimed at maximizing agricultural productivity (Bocean, 2024; Chen et al., 2022; Mishenin et al., 2021; Sodoma et al., 2022; J. Zhang et al., 2023). Corn (*Zea Mays L.*) is a vital food source, rich in carbohydrates and essential for both human and animal consumption. Historically, corn has been a staple in Timor-Leste, despite minimal production due to technological constraints. The cultivation process is influenced by soil type, climate, and proper fertilization, highlighting the importance of effective agricultural practices to enhance productivity and meet community needs.

Cultivated area is a place or land that farmers can use to do activities as a farm, which is celebrated by each farmer will be the owner or responsibility for the land (Duncan et al., 2022; Jänicke & Müller, 2025; Kugbega & Aboagye, 2021; Sukayat et al., 2023; Y. Zhang et al., 2022). It is as a regulation of resources found in the area so that people can use and manage the conviction or support of farmers to increase production sustains family needs (Soekartawi, 2003). In agricultural activities require capital is different will be divided into two (2) fixed capital and non-fixed capital. Productivity factors such as land and equipment categories remain in capital. The capital that does not remain or change is the workers and funds that are withdrawn in each period of the productivity process. It happens in a short time, not in a long time.

Production costs in agriculture are divided into fixed costs (FC) and variable costs (VC), where fixed costs remain constant regardless of output (Lin, 2011), while variable costs fluctuate based on production levels, such as the increasing cost of tractor fuel with higher usage (Lovarelli et al., 2018). Costs are viewed as sacrifices made for economic resources and are essential for understanding agricultural expenses (Heaberlin & Shattuck, 2023). Merchandising involves planning and promoting the distribution of goods to meet consumer needs, highlighting the social and managerial processes of market exchanges (Kim et al., 2022). Cultivation income is calculated as the difference between total revenues (TR) and total costs (TC), leading to gross income (all production results) and net income (revenue after costs) (Ginting et al., 2024). Net income reflects the actual earnings of farming households after accounting for production costs, which include labor and capital expenditures (Mukoviz et al., 2022). Understanding this income analysis helps farmers maximize their advantages and navigate obstacles in the production process, ultimately aiming for sustainable profitability in their agricultural activities.

The research aims to analyze farmers income selling in Suco Lour Zumalai Administrative Post-Covalima Municipality. The research contributes to the understanding of agricultural economics by providing insights into the income dynamics of farmers in Suco Lour, Zumalai Administrative Post, Covalima Municipality. By analyzing farmers' income from selling their produce, the study highlights the factors influencing earnings, including production costs, market access, and pricing strategies. This research can inform policymakers and agricultural stakeholders about the economic challenges faced by local farmers, guiding the development of targeted interventions to enhance profitability and sustainability in the agricultural sector. Additionally, the findings may serve as a

basis for further studies on income diversification and agricultural practices in similar regions, ultimately contributing to improved livelihoods for farming communities.

The current research on farmers' income from selling corn in Suco Lour, Covalima Municipality, presents a novel focus on the economic dynamics of smallholder farmers in Timor-Leste, differentiating it from broader studies on agricultural productivity and market-oriented farming (Kubitza et al., 2024; Madsen, 2022). By utilizing a comprehensive methodology that includes interviews, observations, and structured questionnaires, the study offers detailed insights into factors influencing farmers' earnings, such as production costs, total revenue, and pricing strategies (Duncan et al., 2022; Ume, 2023). Additionally, it emphasizes the roles of gender and local market access in shaping income, areas often overlooked in existing literature (Mishenin et al., 2021; J. Zhang et al., 2021). This research fills a critical gap by addressing the unique agricultural context of Covalima Municipality, thereby providing a foundation for future studies on income diversification and sustainable agricultural practices in similar regions (Ginting et al., 2024; Kim et al., 2022).

METHODS

The researcher employs descriptive methods to analyze farmers' income in Suco Lour, utilizing a simple random sampling technique to select a sample of 100 farmers from the population. Data collection involves three methods: interviews, which facilitate direct communication with the farming community; observations to witness farming activities firsthand; and questionnaires designed to gather structured information. These approaches aim to capture relevant data and insights related to the research topic, ensuring a comprehensive understanding of the farmers' economic circumstances.

For performance analysis, the study uses income analysis methods, calculating total costs (TC) as the sum of total fixed costs (TFC) and total variable costs (TVC), with total revenue (TR) derived from sales. The research also evaluates the contribution of women to household income using a specific analysis formula. The benefit-cost (B/C) ratio is analyzed to assess profitability, with criteria established to determine whether farmers are benefiting from their activities. Key variables measured include net income, total revenue, total costs, production characteristics, and profits, all expressed in monetary terms (U$$). This operational framework helps clarify the economic dynamics of corn farming within the community.

RESULTS

Covalima Municipality is a municipality that is part of Timor-Leste, which is part of the west, the area has great potential and dominated by steep land, generally create conditions to carry out agricultural activities such as food production, agro livestock, agro fisheries and agronomy. Results and income that they get from all agricultural activities population of the municipality to sustain only for family needs, Total area of the municipality of Covalima amounted to 1,206.66 km, composed of seven (7) administrative posts such as Fatululik, Fatumea, Mauka, Tilomar, Foai and Foai Zumalai, including the results of the National Census of Covalima Municipality population of Government building Covalima Municipality total population of 65,301 people composed of women and men, with a total population of women 32,333 and men total 32,968, preferred by a total of 12,564 households.

Respondent Farmer Identity

The identity of the farmer who was taken as a respondent farmer batar, to answer the identities that the researcher took used to research from Suco Lour Administrative Post Zumalai Municipality Covalima as follows:

Farmer Age Respondents

Farmer age is a major factor in people's lives, and will determine people's strength conditions to carry out any activities, with these reasons can also influence people's minds to realize agricultural activities depends on people's strong physical condition. To know the year of the respondent farmer can be seen in the following table:

Table 1. Farmer Age Respondents

No	Age Responds	Frequency	Percent %
1	30-36	3	6
2	37-43	12	24
3	44-50	12	24
4	51-57	13	26
5	58-64	8	16
6	65-71	1	2
7	72-78	1	2
	Total	**50**	**100**

Source: Primary Data, 2019

Based on the table above shows that the age of farmers responded in fifty (50), most age productivity, total frequency less than one (1), discovered age 65-71,72-78 percent 2%, found the highest frequency in thirteen (13), discovered 5.5 percent with age 26%.

Total Family Members

Family members come from farmer respondents who are responsible for each head of household, concluding families from abroad who live together in one house, become a family, to know more can be seen in the following table:

Table 2. Total Family Members

No	Family Members Responding	Frequency	Percent %
1	2	2	4
2	3	6	12
3	4	8	16
4	5	14	36
5	6	9	18
6	7	8	16
7	≥9	3	6
	Total	**50**	**100**

Source: Primary Data, 2019

Based on the table above shows that the total number of farmer family members responded in fifty (50) people, the total frequency of the lowest one (4) household, discovered two (2) people, 2%, the highest frequency of thirteen (14) households, discovered by 5 people, with 36% percent.

Education Level of Respondent

Education is an important aspect of our lives, because through education can dedicate people to become wise to develop and change people's lives. through education dedicate themselves to formal education and non-formal education to increase high production results. Through the research of the

population of corn farmers, most of the practical farmers are not academic farmers, even the practical farming community but they can increase production. For more information, see the following table:

Table 3. Education Level of Respondent

No	Education Level of Respondent	Frequency	Percent %
1	Non Alphabet	21	42
2	Pre-Primary Education	16	32
3	Junior high school	11	22
4	Senior high school	2	4
	Total	**50**	**100**

Source: Primary Data, 2019

Based on the table above shows that the level of education of corn farmers responded in fifty (50), discovered farmers Secondary Education with its minimum frequency of two (2) people, 4 percent, discovered non-alphabetic farmers got the highest frequency of twenty-one (21) people, with 42%.

Responsive Work Experience

Farmers work experience is a determining factor to increase growth and production quantity, because of their own knowledge or practical experience gained about the operation of the cultivation area, based on information obtained from some parties. To know more about the work experience of farmers can be seen in the following table:

Table 4. Responsive Work Experience

No	Responsive Work Experience	Frequency	Percent %
1	10-15	4	8
2	16-29	15	20
3	20-25	7	14
4	26-39	9	18
5	30-35	6	12
6	36-40	7	14
7	41-45	3	6
	Total	**50**	**100**

Source: Primary Data, 2019

Based on the table above shows that the work experience of corn farmers respondents in fifty (50), discovered 45 farmers' work experience with its minimum frequency of three (3) people, 6%, discovered farmers' work experience between 15-29, found the highest frequency of fifty-two (15%), 20%.

Wide Area Cropped Farmer Respondents

Area Cultivation area responds to all farmers owning the area (land), fertile soil conditions and dominates the area of one hectare, which farmers use to carry out agricultural activities with various varieties, especially using cultivation. To know the area of farmers use can be seen in the following table:

Table 5. Wide Area Cropped Farmer Respondents

No	Respondent Cultivation Area	Frekuensi	Percent %
1	0,42-0,47	1	2
2	0,48-0,55	6	12
3	0,56-0,63	5	10
4	0,64-0,71	4	8
5	0,72-0,79	4	8
6	0,80-0,89	9	18
7	0,90-1	21	42
	Total	**50**	**100**

Source: Primary Data, 2019

Based on the table above shows that the total area of farmers responded in fifty (50) people, discovered the smallest cultivated area area amounting to 0.42-0.47, 2% percent, with its frequency of one (1) person, discovered the largest frequency of cultivated area amounted to twenty-one (21.1 percent), 42%.

Employer

Labor is a very important factor in any agricultural activity, as a resource to manage how to achieve growth in quality and quantity of production. The employers who recognized the farmers as respondents with a large or small total, to know clearly can see in the following table:

Table 6. Employer Respondents

No	Employer Responds	Frequency	Percent %
1	8-13	4	8
2	14-19	10	20
3	20-25	7	14
4	26-31	9	18
5	32-37	8	16
6	38-43	1	2
7	≥48	7	14
	Total		**100**

Source: Primary Data, 2019

Based on the table above shows that the total number of employers responded in fifty (50), discovered the smallest employer amounting to 38-43, 2% percent, with its frequency of one (1), discovered the employer received the highest frequency of ten (10), from 14-19, with 20 percent.

Farmer Capital Respondent

Capital is an important factor to carry out all agricultural activities for the production process, especially for farmers, based on this research shows that capital is the cost used for the production process for one (1) year. To know the capital of farmers can be seen in the following table:

Table 7. Farmer Capital Respondent

No	Respondent Farmer Capital	Frequency	Percent %
1	70	6	12
2	80	5	10

3	90	5	10
4	100	7	14
4	150	9	18
6	200	11	22
7	250	7	14
	Total	**50**	**100**

Sources: Primary Data, 2019

Based on the table above shows that the capital of farmers used for the process of production in fifty (50) people, discovered using capital U$$ 70 from farmers, 4% percent, with its minimum frequency of six (6), discovered that using capital U$$ 200 from farmers with its frequency of more than 11 people, percent 22%.

Total Respondent Fixed Cost (TFC)

Fixed costs are the costs used for equipment to facilitate the process of agricultural activities, using long-term costs (TFC), which are invested by corn farmers for the production process. To find out, see the following table:

Table 8. Total Respondent Fixed Cost (TFC)

No	Total Respondent Fixed Costs	Frequency	Percent %
1	22-24	4	8
2	25-29	8	16
3	30-34	13	26
4	35-39	10	20
5	40-44	9	18
6	45-54	4	8
7	≥55	2	4
	Total	**50**	**100**

Source: Primary Data, 2019

Through the table above shows that the fixed cost that farmers use for the process of production in fifty (50) people, found that used cost between ≥55 farmers with its minimum frequency of two (2), 4% percent, found that used cost between 30-34 farmers with total frequency of more than three people thirteen (13), with 26% percent.

Respondent Total Move Cost (TVC)

Total variable costs such as the cost of some materials and process activities, can be said to use short-term costs (TVC), comes from the capital invested by corn farmers for the production process in one (1) year. To know the total cost of moving using farmers, you can see in the following table:

Table 9. Respondent Total Move Cost (TVC)

No	Total Moving Costs Respondents	Frequency	Percent %
1	18-19	9	18
2	20-22	15	30
3	23-25	8	16
4	26-28	11	22
5	29-31	2	4

6	32-36	3	6
7	≥37	2	4
	Total	**50**	**100**

Source: Primary Data, 2019

Based on the table above shows that the cost that farmers use for the production process in fifty (50) people, found that used cost between 26-31, 37>, from farmers with its minimum frequency of two (2), 2%, found that used cost between 20-22 people eleven (11), with 22% percent.

Total Cost (TC)

Total cost (TC) or all expenses incurred by farmers to carry out activities for cultivation at a time. For more details, see the following table:

Table 10. Total Cost (TC)

No	Total Respondent Cost	Frequency	Percent %
1	44-50	9	18
2	51-57	14	28
3	58-64	10	20
4	65-71	10	20
5	72-78	2	4
6	79-85	4	8
7	86-91	1	2
	Total	**50**	**100**

Source: Primary Data, 2019

Based on the table above shows that the cost that farmers use for the process of production in fifty (50) people, discovered that the total cost is higher with the amount of U$$ 86-9, with its minimum frequency of one (1), 2% percent, total minimum cost with the amount of U$$ 4-50, (9), by 18%.

Total Respondent Production

Production is the total final result of farmers used as the result of production that is combined and coordinated with input-output materials. To increase production, in order to obtain maximum income. To know the results of corn production obtained by farmers, you can see in the following table:

Table 11. Total Respondent Production

No	Total Respondent Production	Frequency	Percent %
1	450	11	22
2	500	8	16
3	550	5	10
4	600	8	16
5	650	9	18
6	700	2	4
7	750	7	14
	Total	**50**	**100**

Source: Primary Data, 2019

Based on the table above shows that the total production of corn responded in fifty (50) people, discovered that the total quantity of production is the minimum of 450 kg, with its frequency of eleven (11) people, 22%, discovered that the total quantity of production is maximum of 750 kg, the total frequency of people is seven (7), 14%.

Total Respondent Receipts (TR)

Total revenues or total income as the final result received by farmers with the value of money (U$$), with the p / cost invested from the preparation of equipment, materials, and implementation of farmer activities as output or cost that they use (expenses) during the production process until harvest, (50). To know the total revenues can be seen in the following table:

Table 12. Total Respondent Receipts (TR)

No	Total Respondent Receipts	Frequency	Percent %
1	225	11	22
2	250	8	16
3	275	5	10
4	300	8	16
5	325	9	18
6	350	2	4
7	375	7	14
	Total	**50**	**100**

Source: Primary Data, 2019

Based on the table above shows that the total revenues or total income of farmers received a total of fifty (50) people, discovered that the total revenues are minimum with the amount of money U$$ 225, with its frequency of eleven (11) people, 22% percent, found that the total revenues are maximum with the amount of money amounting to U$3 seven (7), with 14% percent.

Total Result Also Responds (∏)

Total income is also the interest or profit received from corn farmers, with the value of costs invested during the production process, production to the market and obtain dirty income. To know the total income also received from farmers can see the following:

Table 13. Total Result Also Responds (∏)

No	Total Result Also Responds	Frequency	Percent %
1	136-160	2	4
2	161-167	7	14
3	168-175	1	2
4	176-190	7	14
5	191-147	11	22
6	148-298	5	10
7	299-327	8	16
	Total	**50**	**100**

Source: Primary Data, 2019

Based on the table above shows that the total income also received from farmers amounting to fifty (50) people, discovered that the total income is also minimal with its frequency of one (1) person

with the amount of money U$$ 168-190, 2% percent, discovered that total income is also maximum with its frequency of one (1) people U$$ 191-147, 30% percent.

Total Invested Budget (TFC and TVC)

Total budget investment for corn farmer activities realized during investment budget for the production process, budget as fixed cost (TFC), variable cost (TVC). Management to obtain corn production, and market orientation as the income of corn farmers, to know more clearly can be seen in the following table:

Table 14. Total Invested Budget (TFC and TVC)

Farmer Component Invests Cost in Corn Production Process			
No	**Fixed Costs**	**Total Value (U$$)**	**Average**
1	Crowbar	402	8.04
2	Panga	606	12.12
3	Pick Mattock	291	5.82
4	Grape Hoe	524	10.48
	TFC	**1.752**	**36.46**
No	**Moving Costs**	**Total Value (U$$)**	**Average**
1	Cutting Grass	207	4.14
2	Plant	218	4.36
3	Clean Grass	292	5.84
4	Harvest	188	3.76
5	Bring	166	3.32
6	Hit {shelling corn}	137	2.74
	TVC	**1.218**	**24.16**
	TC = TFC + TVC	**2.970**	**5.940**

Source: Primary Data, 2019

Based on the table above to explain only two (2) components such as fixed costs, and variable costs farmers, looking at fixed costs (TFC) total result amounted to U$$ 1,752, total means amounted to 3,474%, variable costs (TVC) with its total results amounted to U$$ 12,200. (TFC+TVC = 1,752+1,218 = U$$ 2,970 (TC), mean 5,940%).

Corn P (Kg)

The results of corn production obtained from farmers will be sold at a fair p, according to the results of research taken from corn farmers in 2019, that makes the p of corn is U$$ 0.50 centavos per kilo (per/kg).

Data Analysis Results

Income analysis for corn farmers synchronized with fixed cost (TFC) and variable cost (TVC) used in the production process, farmers manage to obtain production results, and oriented to the market to receive monetary value as income. To know the total value of the budget received from fifty (50) people can see the account according to the formulation, as follows.

To determine the high or low cost **(TC)** used by farmers during the production process, with the counting value, use the following formulation:

TC = TFC + TVC

TC = 1.752 + 1.218

TC = **2.970**

Next to know the total income revenue of corn farmers **(TR)**, in one year, with the value of the count using the formulation is as follows:

TR **= Y x Py**
TR = 28.450 x 0.50
TR = **14.225**

From the results showed that the total production of corn obtained from farmers (y) 28,450 kg, times the p of corn (Py) sold is U$$ 0.50 cents per/kg. Total income received by farmers, in the amount of U$$ 14,225 To know the net income (Ꭻ) of farmers received, with the value that the count uses the following formulation:

π **= TR - TC**
π = 14.225 – 2.970
π = **11.255**

Benefit analysis (Benefit, non-benefit and balance), to know the separation between the income also received from the farmer divided by the total cost used by the farmer. Criteria to define whether farmers benefit or not? is as follows:

1. B/C = 1> It means that the corn farmer get the benefits.
2. B/C = <1 It means that the corn farmer does not benefit.
3. B/C = 1 It means that the farmer receives the corn with balance.

To know the counting value, the analysis according to the *Benefit* formulation is as follows:

$$NETB/C = \frac{11.225}{2.970} = 3.77$$

$$B/C = 4$$

The criterion of benefit value responds significantly, which shows that all farmers selling corn benefit in one year, based on the count with its benefit value of 3.77 (4), to know more clearly the criteria are as follows:

- B/C = 1>4 Signifika katak agrikultor fa'an batar hetan benefisiu iha tinan ida nia laran (2019).

Total Budget Estimates: (TC, TR and ∏)

Total corn production obtained from farmers with the quantity of corn (y) 28,450 kg, times the p of corn (Py) sold is U$$ 0.50 cents per/kg. How to total cost (TC) used by farmers during the production process, total income (TR) farmers receive, and income (∏) received by farmers, to get benefits. for more details, see the following table:

Table 15. Total Budget Estimates: (TC, TR and ∏)

No	Description		Total Farmers	Total Value (U$$)	Averge
1	Total Cost	TC =TFC + TVC	50	2.970	59.400
2	Total Revenue	TR = Y x Py	50	14.225	284.50
3	Total Income also	∏ = TR - TC	50	11.225	224.50
4	Benefit	B/C = ∏ /TC	50	3.77 (4)	75.4

Source: Primary Data, 2019

According to the table above shows that: Total Cost (TC) is the total value obtained from TFC + TVC with a value of U$$ 2,970 Dollar, total means amounting to 59,400. Total income received (TR) from corn farmers counted from Y x Py with a value of U$$ 14,225 Dollar, with a total of 284.50 Total income (∏) corn farmers received counted from TR-TC with a value of U$$ 11,225, with a total of 24,250 corn farmers. is it beneficial? The criterion is defined as significant with a positive benefit value, the count of ∏/TC with a total value of 3.77, a mean value of 75.4. This means that all farmers selling corn benefit in 2019.

CONCLUSION

The research on farmers' income from selling corn in Suco Lour, Covalima Municipality, reveals critical insights into the economic conditions of local farmers, indicating total costs of US$ 2,970, total income of US$ 2,970, total income of US$ 28,450, and net income of US$ 14,225, with a favorable benefit-cost ratio of 3.77, highlighting the profitability of corn farming in the region. The findings underscore the importance of addressing key factors such as production costs, market access, and the adoption of modern agricultural technologies to enhance farmer income. Future studies are recommended to explore the impact of technological advancements, gender roles in agriculture, market dynamics, and the effectiveness of agricultural extension services, thereby contributing to improved agricultural sustainability and economic outcomes for farmers in similar contexts.

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