

THE ECONOMIC BEHAVIOR OF SEAWEED FARMERS' HOUSEHOLDS IN PASIKOLAGA SUB DISTRICT MUNA DISTRICT



Nur Rahmawati¹⁾, Rosmawaty¹⁾, La Ode Kasno Arif^{1*)}

¹Department of Agribusiness Faculty of Agriculture, Universitas Halu Oleo Kendari 93232

*Corresponding author: kasno86arif@uho.ac.id

To cite this article:

Rahmawati, N., Rosmawaty, R., & Arif, L. O. K. (2023). The Economic Behavior of Seaweed Farmers' Households in Pasikolaga Sub District Muna District. *JIA (Jurnal Ilmiah Agribisnis) : Jurnal Agribisnis Dan Ilmu Sosial Ekonomi Pertanian*, 8(4), 297–304. <https://doi.org/10.37149/jia.v8i4.291>

Received: December 13, 2022; **Accepted:** September 09, 2023; **Published:** September 11, 2023

ABSTRACT

This study aims to determine the economic behavior of seaweed cultivator households in Kolese Village, Pasikolaga Sub District, Muna Regency. This research was conducted in Kolese Village, Pasikolaga Sub District, Muna Province. Household economics includes a discussion of household economic behavior regarding production, working hours, income, and household consumption expenditures. The survey subjects were 47 people, carried out by simple random sampling. The data analysis used is a quantitative descriptive analysis method. Based on the research results, the average income of seaweed cultivators is 1,608 kg/year. The time spent growing seaweed reached 4.81%, packing seaweed reached 25.42%, and drying time reached 3.53%. The average household income earned by farmers is IDR. 18,924,818. The average expenditure for food was IDR. 269,647, while for non-food expenditure, it was IDR. 767,987.

keywords: expenditure; household economics; income; seaweed.

INTRODUCTION

Muna Regency is an area in Southeast Sulawesi with the potential for waters that are very profitable for fish cultivation businesses. Based on initial surveys, Pasikolaga Sub District is one of the areas located on the coast of Muna Regency, so people cultivate seaweed to earn income to meet their family's living needs. The types of seaweed planted by the people of Pasikolaga Sub District are *Hypnea sp* and *Eucheuma cottonii*. The price of *Hypnea* is IDR 5,500/kg, and the price of *Eucheuma cottonii* is IDR 32,000/kg. Seaweed production in Pasikolaga Sub District fluctuates wildly, although it generally tends to increase from year to year. This condition is caused by several things, including (1) pest attacks such as rabbitfish and white disease (ice), (2) planting seasons tend to be unstable, (3) limited seed quality disease resistance, and (4) inadequate agricultural and trade capital. Limited and limited human resources (Ghalib *et al.*, 2022). Income is essential for everyone, and income significantly influences a business's existence. A company's ability to fund all its sustainability support activities significantly impacts company revenue. Income is money to several business agents that the business receives from buyers due to the sale of goods or services (Madji *et al.*, 2019).

According to Mastuti and Hidayat (2009), working time allocation is the proportion of household, social, and subsystem work carried out by the workforce, analyzed through the value of time and calculated by considering the amount of time spent personally. As a source of labor, family farmers will use additional labor for money or family farming activities because production will produce commodities considering the resources available to them, and like consumers, meet all the family's needs, especially food. Consume with disposable income in mind. Current household expenditure is determined by household income and related household consumption behavior. In general, household expenditure can be divided into consumption and productive price. Production costs are usually released when consumption is incurred (Siddik & Juniarsih, 2013).

Farming household behavior is the decision-making action regarding consumption and production carried out by the head of the household to maintain their livelihood (Rochaeni & Lokollo, 2005). Agricultural household economic activities also include production and consumption activities.



Families, as consumers, aim to maximize their utility, while producers aim to maximize their profits. These households face different resource limitations, so they have choices in allocating the household consumption and production expenditure budget to make the right decisions in carrying out their economic activities. The financial activities of farmer households include production and consumption, which depend on each other. Farmers' household production decisions will be determined by allocating our household's work time to their agricultural business. The distribution of farmer household labor time will determine farmer household income. Farmer household income will influence expenditure, including food and non-food expenditure, which will affect agricultural households' standard of living (Andria *et al.*, 2018).

Human needs are unlimited because humans tend never to be satisfied and always feel inadequate while their resources are limited. Because available resources are limited, people try to overcome this problem by making the right decisions in their economic activities. To achieve the intended goals, households as consumers and producers must be able to choose and make the right decisions in carrying out their economic activities. Household economic behavior includes production, distribution of labor time, income, and consumer expenditure. This research aims to determine seaweed-producing households' economic behavior in Pasikolaga Sub District, Muna Regency.

MATERIALS AND METHODS

This research was conducted in Kolese Village, Pasikolaga Sub District, Muna Province. This research will begin in January 2022 and will be completed. The population of this study was all seaweed farmers in Kolese Village, Pasikolaga Sub District, Muna Regency, totaling 88 heads of seaweed farming families. The number of samples was determined using the Slovin formula, resulting in a sample of 47 heads of households. Sample identification in this research was done using the simple random sampling method. This technique is carried out randomly so that each subject in the population has the same opportunity to be selected as a research sample (Rianse & Abdi, 2009). Sampling in this research was conducted using a random sampling method, namely a sampling technique based on randomization. Anyone who meets the research subject can be used as a sample if the respondent is deemed suitable as a data source. The analysis used in this research is descriptive analysis, which describes demonstrating or helping to summarize data so that it can develop to meet the required data.

RESULTS AND DISCUSSION

Respondent Identity

The respondent's identity describes the respondent's socio-economic condition, which also influences his ability to manage his business. The respondents in this research were 47 seaweed farmers from Kolese Village. The identity of the respondents described in this research includes age, level, number of dependents in the family, and experience in running a business. More details can be seen in Table 1.

Table 1. Identity of respondents as seaweed farmers

No	Characteristics	Number of Respondents (People)	Percentage (%)
1	Age (Year)		
	15-54	30	63.83
	>54	17	36.17
2	Education Level		
	Didn't Complete Elementary School	7	14.89
	Elementary School	12	25.53
	Junior High School	14	29.79
	Senior High School	13	27.66
	Vocational School	1	2.13
3	The Number of Dependents (Person)		
	1-4	37	78.73
	5-7	9	19.15
	>7	1	21.27

Table 1. Identity of respondents as seaweed farmers

No	Characteristics	Number of Respondents (People)	Percentage (%)
4	Experience (Year)		
	<5	16	34.04
	5-10	17	36.17
	>10	14	29.79

Table 1 shows that seaweed cultivators are still grouped based on production age, with 30 respondents. This means the physical ability and mental power of the cultivator Seaweed in Kolese Village is still relatively high. The production age of farmers at the research location can influence work performance, in this case, related to physical abilities, experience, and ways of thinking to solve problems faced by seaweed cultivation farmers. This is in line with research by Agiesta *et al.*, (2017) emphasizing that farmers reach production age, have agricultural production business capabilities, can work to meet the family's economic needs, and develop agriculture with a good level of qualifications, intelligence, and emotions. Furthermore, Effendy *et al.*, (2020) also stated that farmers of productive age have the potential to participate in the development of their agribusiness.

The level of education in Kolese Village, in general, is still low, which is reflected in the high proportion of residents who only have a junior high school education, and only a small portion have completed tertiary education and vocational school. This shows that seaweed cultivators have completed formal education, but none have received higher education. Hopefully, the farmers who respond can grow up and have a broad vision to act. It also provides knowledge capital for farmers to improve algae cultivation in a more productive direction. This is in line with Mokodongan *et al.* (2016) show that the higher a person's level of education, the more responsive they are to technological developments and their ability to absorb information technology related to agriculture. The number of dependents seaweed cultivators generally have a relatively small number of family dependents so that family dependents do not become a burden for seaweed cultivators. They are running his cultivation business. The criterion for the number of dependents in a family being > four is high. This figure can have a positive value if used in seaweed cultivation. The number of farming family members plays an essential role in carrying out the task of meeting daily needs. The more members a farming family has, the less work they can do and reduce labor costs in running their farming business. This is following research by Annisa & Lamusa (2014) believe that the large number of people who depend on the family also influences agricultural activities; the higher the number of people who rely on the family, the more thinkers there are in agricultural business, so that the interactivity is higher. In addition, the greater the number of dependents, the greater the costs or expenses incurred, so the income from the cultivation business also decreases.

Algae growers are pretty experienced in cultivating algae. With experience, farmers can identify weaknesses and gaps as well as new opportunities for their profession, and with increasing experience, it is easier for farmers to find problems that may arise and increase production volume compared to previous production. The more experienced a farmer is, the wiser they are in their actions or decisions in managing their farm. This follows research by Soekartawi (2003) a person's experience in the agricultural sector influences the acceptance of external innovation. Besides That, Mokodongan *et al.* (2016) also said that the longer a farmer carries out agribusiness, the more influence his habits, skills, or expertise will have in carrying out agricultural activities, affecting the scale of production results.

Household Economic Behavior

Economic behavior will never be separated from our daily lives, from minor to big things. Humans carry out various financial behaviors in their efforts to survive. Every individual has their own needs. According to Nakajima (1986), Some characteristics of farmer households include: first, the home has resources that can provide satisfaction and can be enjoyed together by family members. Second, the household must have alternative suggestions to increase satisfaction so that they have more choices. This study distinguishes several aspects of household economic behavior: production, working time, income, and consumption expenditure.

1. Production

Production is an activity measured as the output level at a time. In the production process, there is a very close relationship between the production factors used and the production produced Astuti, (2017). The production referred to in this research is the final result of seaweed cultivation. Seaweed harvesting is carried out when it has reached harvest age 40-45 days after planting. The

production amount will determine farmers' success in managing their farming business. The amount of production cultivated will select the size of the income that seaweed farmers will earn.

Table 2. Average amount of seaweed production

No	Types of Seaweed	Price (IDR)	Production/Kg
1.	Red Seaweed (<i>Hypnea Sp</i>)	5.532	925.68
2.	Green Seaweed (<i>Eucheuma cottonii</i>)	31.882	683.82
	Amount	37.414	1.608

Table 2 shows that in Kolese Village, there are two types of seaweed: red seaweed, with an average harvest of 925.68 kg, and green seaweed, with an average yield of 683.82 kg. The difference in production quantity between red algae and green algae is because red algae are more resistant to disease than green algae. Seaweed respondents in Kolese Village cultivate red seaweed to maintain sustainable production in the event of poor green seaweed harvests caused by *ice-ice disease*. Judging from the technical aspect, the availability of red seaweed seeds is more significant and easier to obtain, while the availability of green seaweed seeds is less. This situation is one of the reasons why the price of green algae is more expensive than red algae. From an economic perspective, red algae have a larger market share and a lower selling price than green algae. The success of an algae cultivation business depends on factors that influence both external factors, namely choosing the right location for the algae species and factors closely related to the characteristics of the algae. As the depth of water. Light (brightness), nutrient availability, and internal factors related to the type and size of *thallus*. Water depth greatly influences algae growth. This can be seen from the amount or intensity of light entering the water and the ability of algae to absorb sunlight to carry out photosynthesis.

2. Time Outfall

Household work is the time family members use to carry out activities to earn income. The management and division of work time of seaweed farmers in the research location is generally quite heterogeneous. Family work time includes the husband's work time, the wife's work time, and paid work time. Meanwhile, their children participated by helping with the activities carried out.

Table 3. Average working hours for seaweed farming families (hours/month)

No	Type of Activity	Average Working Time Hours/Harvest								Total	(%)
		Husband	%	Wife	%	Child	%	Labor	%		
1	Plant	179	3.81	32	0.68	15	0.32	--		26	4.81
2	Tie	286	6.09	179	6.57	235	5.53	340	7.23	1.195	25.42
3	Dry in the sun	129	2.74	29	0.62	4	0.09	2	0.04	164	3.53
	Total	594	12.64	240	7.87	254	5.94	342	7.27	1.385	33.76

Based on Table 3, the average working time for husbands is 12.64%, wives 7.87%, children 5.94%, and working time 7.27%. The wife has less time to work than her husband because she cares for the household and the children. According to Becker (1976), The level of participation of household members is influenced by gender differences. Women have a dual role, namely the domestic and community roles. Biologically, women perform a domestic role: caring for the family and ensuring productive functions. Apart from that, women also play a role in the production function, especially in the labor market. Women have a more significant comparative advantage than men in household work, so women will allocate their time to household work while men work to earn a living.

3. Production Costs

The production costs of a seaweed cultivation business are all the results incurred while running the cultivation business. The costs in question are incurred by cultivators in the production process of commercial seaweed cultivation.

Table 4. Average fixed production costs for seaweed farmers

No	Fixed Costs (IDR)	Number of Respondents (People)	Percentage (%)
1	<750,000	1	2.13
2	750,000-1,500,000	4	8.51
3	>1,500,000	42	87.23
	Amount		100.00

Table 4 shows that the highest average fixed costs were 87.23 with 42 respondents, while the lowest average fixed costs were 2.13 with one respondent. The more seaweed you cultivate, the higher the cost of purchasing seeds. Conversely, if you plant less seaweed, the cheaper the cost of buying seeds will be. According to the results of field interviews, the costs farmers incur most are boats, machines, and buoys. The highest costs incurred by seaweed cultivators to carry out cultivation operations are boats, engines, ropes, floats, and seeds.

Meanwhile, the lowest costs incurred by farmers are knives. The cost-income relationship can be calculated for the entire farm as a single unit over a specific time, for example, during the growing season. In this case, all production costs are added and compared with the income obtained. Production costs determine the level of profit. Because profit is the difference between demand (income) and costs (costs). If costs are reduced, the producer or seller's profit will increase, increasing the quantity of goods offered to the market (Rahayu Sri, 2020).

Table 5. Average variable production costs for seaweed

No	Variable Costs (IDR)	Number of Respondents (People)	Percentage (%)
1	<700,000	2	4,26
2	700,000-1,400,000	7	14.89
3	>1,400,000	38	80.85
Amount			100.00

Table 5 shows that the highest variable costs incurred by the seaweed cultivators surveyed were IDR > 1,400.00, with a percentage of 80.85%. Meanwhile, the lowest variable costs are found in seaweed production, namely <IDR700,000, with a ratio of 4.26%. The most significant use of variable costs occurs in purchasing seeds. The variable costs borne by respondents in the seaweed cultivation business are variable costs, namely the costs of sources, setting bases, planting, maintenance, harvesting, fuel, and labor. An increase in the expenses of a business can result in losses. On the other hand, households require higher incomes to meet their living needs.

4. Acceptance

Revenue is the result received from operating results before deducting costs. Farmer income includes cash and non-cash receipts. Cash receipts are in the form of sales of agricultural products received directly by farmers, while non-cash receipts are from farm products consumed by farming households (Mubyarto, 2005).

Table 6. Average income from seaweed businesses

No	Revenue (IDR)	Number of Respondents (People)	Percentage (%)
1	<26,000,000	37	78.72
2	26,000,000-52,000,000	7	14.90
3	>52,002,000	3	6.38
Amount			100.00

Based on Table 6, it can be seen that the highest income for seaweed farmers is IDR 52,002,000, with a percentage of 6.38%. The income scale of seaweed cultivators in the study area depends on the amount of seaweed production and the selling price. The product quantity and the selling price influence the profit size. Thus, if production is high, then the selling price is high, and income is also high. Conversely, if production is low or high, but the selling price is low, then the income received will be low.

The income that farmers receive has a significant influence on the sustainability of seaweed cultivation businesses. The size of the income of a farming business is influenced by the amount of results obtained by the farmer. Thus, if output and prices are high, the income received by farmers will be increased, and vice versa. If production and prices are low, the income received by farmers will also be low. This is in line with the opinion of Soekartawi (1995) that acceptance of playing an important role in activities in the sustainability of their business, in this case, seaweed cultivation, will influence the size of the income the farmer will receive.

5. Income

Income is the result obtained by seaweed cultivators through production factors or inputs. According to Alpharesy et al. (2012), Household income is the total income generated by family members in the form of money through their work. Income is obtained from the company's total income minus the costs of using production factors in the production process. The level of income farmers earn depends on production results and current selling prices. The size of income is also influenced by the costs of using production factors in the production process.

Table 7. Average annual income of seaweed farmers

No	Description	Number of Respondents (People)	Percentage (%)
1	<25,500,000	37	78.72
2	25,500,000-51,000,000	4	8.51
3	>51,000,000	6	12.77
Amount		47	100.00
Average Income		18,924,818	
Highest income		78,577,000	
Lowest income		2,926,000	

Based on Table 7, the average income of seaweed cultivators is IDR 18.924818. The highest income for seaweed farmers is IDR 78,577,000, while the lowest income for seaweed farmers is IDR 2,926,000. The cultivation location, production amount, and selling price can influence algae farmers' income for each harvest season. All costs used in the production process have reduced the income received by algae farmers. Household income is the sum of all the results obtained by family members in the form of money through their work. Household income determines purchasing power for food and other amenities, including clothing, education, housing, and health. Household income will be related to how the basic needs of working fishermen are met because low income will affect purchasing power or low household expenses. Income is an essential determinant of expenditure on food consumption, non-food consumption, and investment in education. The higher the income level, the more a household can allocate to food consumption, not development, and invest in education to maximize utility. The influence of income is significant on food and non-food consumption and educational investment, although it does not react. Households have reasoned about their income distribution. The more school-aged children a family has, the greater the investment expenditure for education. The effect is authentic and fast. This is done to increase human resources.

6. Expenditures

household expenditure includes expenditure on food and non-food. Food costs include all primary and supporting goods provided by farmers to meet family consumption needs, while non-food expenses incurred by farmers are to meet non-food essentials such as electricity, fuel, and education costs.

Table 8. Average total household expenditure for seaweed farmers (IDR/month)

No	Expenditure	Type	Value (IDR)
1	Food	Rice, corn, and sweet potatoes	468.765
		Side dishes, vegetables, and fruit	304.617
		Drink	75.652
		Cooking oil, kerosene, and gas stove	229.553
Average			269.647
2	Non Food	Education	1.716.922
		Electricity cost	97.444
		Other needs	489.595
Average			767.987
Total Average			1.037.634

Based on Table 8, it can be seen that the average cost incurred by seaweed producers is IDR1,037,634. The expenses of cultivating seaweed include food and non-food costs. Harvesting costs include feed and non-feed costs. Food expenditure includes staple foods, including rice, corn, and sweet potatoes: toppings, fruit, and vegetables, drinks, and support. Meanwhile, non-food

expenses include tuition fees, electricity rentals, and other necessities. Based on Purwanti (2010), Basic food expenditure is all for household consumption, including rice, corn, tubers, vegetable protein, animal protein, and other food expenditures. Essential food expenditure is influenced by total household income and the number of family members. Total household income affects actual spending on food and food. The higher the income, the better the household meets its food needs. Income plays a significant role in determining consumption levels. If a person's or a household's income increases, the household's consumption will also increase, and vice versa; the household's income level increases, the lower the consumption level. The number of family members influences consumption, where the greater the number of family members, the higher the proportion of expenditure on food and non-food. This means that the smaller the number of family members, the smaller the portion of income devoted to food needs.

CONCLUSION

Based on the research results on the economic behavior of seaweed, it can be concluded that the economic behavior of seaweed producers in Kolese Village, Pasikolaga Sub District, Muna Province, includes production, income input, labor time, and costs. The average farmer's income is higher than the costs, so farmers can still save money on seaweed cultivation activities. The highest household costs for seaweed cultivators are non-food needs. The advice I can give is that there is government assistance to provide capital assistance to seaweed cultivators to increase seaweed production. As well as organizing non-formal education activities for farmers through training and tutoring to increase farmers' income.

REFERENCE

- Agiesta, V., Widjaya, S., & Hasanuddin, T. (2017). Faktor-Faktor Yang Berhubungan Dengan Keputusan Petani Beralih Kemitraan Dalam Berusaha: Kasus Petani Kemitraan Tebu Di PT Gunung Madu Plantations Beralih Ke Kemitraan Ubi Kayu Di Pabrik Bumi Waras. *Jurnal Ilmu-Ilmu Agribisnis*, 5(1). <https://jurnal.fp.unila.ac.id/index.php/JIA/article/view/1679>
- Alpharesy, M. A., Anna, Z., & Yustiati, A. (2012). Analisis pendapatan dan pola pengeluaran rumah tangga nelayan buruh di wilayah pesisir Kampak Kabupaten Bangka Barat. *Jurnal Penelitian Kependudukan*, 3(1). <https://jurnal.unpad.ac.id/jpk/article/view/3547>
- Andria, A., Elinur, & Jumatri. (2018). Kajian Ekonomi Rumah Tangga Petani Padi di Kabupaten Kampar Provinsi Riau. *Jurnal Agribisnis*, 20(1), 99-112. <https://doi.org/10.31849/agr.v20i1.1500>
- Annisa, R., & Lamusa, A. (2014). Analisis Kelayakan Usaha Bandeng di Desa Dolako Kecamatan Parigi Selatan Kabupaten Parigi Moutong. *e-Journal Agrotekbis*, 2(3). <https://www.neliti.com/publications/243523/analisis-kelayakan-usaha-tambak-bandeng-di-desa-dolago-kecamatan-parigi-selatan#cite>
- Astuti, D. R. D. (2017). *Ekonomika Agribisnis (Teori dan Kasus)*. Makassar.
- Becker, G. S. (1976). *The economic approach to human behavior (Vol. 803)*. University of Chicago Press.
- Effendy, L., Kusnady, D., Maryani, A., & Pradiana, W. (2020). Accelerating Farmers' Regeneration of Chili Farmers in Garut District, West Java, Indonesia. *The International Journal of Humanities & Social Studies*, 8(5). <https://doi.org/10.24940/theijhss/2020/v8/i5/HS2005-111>
- Ghalib, L. O. M., Sarmadan, & Tanzil. (2022). Upaya Peningkatan Kesejahteraan Keluarga Melalui Budidaya Rumput Laut (Studi Di Desa Kolese Kecamatan Pasikolaga Kabupaten Muna). *WELL-BEING: Journal of Social Welfare*, 1(2). <https://doi.org/10.52423/well-being.v1i2.16528>
- Madji, S., Engka, D. S. M., & Sumual, J. I. (2019). Analisis Faktor – Faktor Yang Mempengaruhi Pendapatan Petani Rumput Laut Di Desa Nain Kecamatan Wori Kabupaten Minahasa Utara. *Jurnal EMBA*, 7(3). <https://ejournal.unsrat.ac.id/index.php/emba/article/view/24939>
- Mastuti, S., & Hidayat, N. (2009). Role of women workers at dairy farms in Banyumas district. *Animal Production*, 11(1), 40-47.
- Mokodongan, A., Rauf, R., & Laapo, A. (2016). Analisis Pendapatan Petani Penggarap Pada Usahatani Padi Sawah Di Desa Kaleke Kecamatan Dolo Barat Kabupaten Sigi. *AGROTEKBIS: E-JURNAL ILMU PERTANIAN*, 4(3), 310-315. <http://jurnal.faperta.untad.ac.id/index.php/agrotekbis/article/view/25>
- Mubyarto. (2005). *Pengantar Ekonomi Pertanian*. LP3ES.
- Nakajima, C. (1986). *Subjective equilibrium theory of the farm household*. Elsevier.

- Purwanti, P. (2010). *Model Ekonomi Rumah Tangga Nelayan Skala Kecil dalam Mencapai Ketahanan Pangan: Analisis Simulasi Kebijakan*. Universitas Brawijaya Press.
- Rianse, U., & Abdi. (2009). *Metodologi Penelitian Sosial Dan Ekonomi Teori dan Aplikasi*. CV. ALFABETA.
- Rochaeni, S., & Lokollo, E. M. (2005). Faktor-Faktor yang Mempengaruhi Keputusan Ekonomi Rumah Tangga Petani di Kelurahan Setugede. *Jurnal Agroekonomi*, 23(2), 133-137. <https://epublikasi.pertanian.go.id/berkala/jae/article/view/1662>
- Siddik, M. S., Amiruddin, A., & Juniarsih, N. (2013). Perilaku Ekonomi Masyarakat Miskin Di Sekitar Kawasan Hutan Gunung Rinjani Pulau Lombok. *Jurnal Agribisnis Indonesia (Journal of Indonesian Agribusiness)*, 1(1), 27-38. <https://doi.org/10.29244/jai.2013.1.1.27-38>
- Soekartawi. (2003). *Agribisnis Dan Teori Aplikasinya*. PT. Raja Grafindo Persada.
- Soekartawi. (1995). *Analisis Usahatani*. UI Press.