PRICE COMPETITIVENESS ANALYSIS OF SEAWEED IN LEDERAGA VILLAGE, HAWU MEHARA SUBDISTRICT, SABU RAIJUA REGENCY

(Analisis Daya Saing Harga Rumput Laut Di Desa Lederaga Kecamatan Hawu Mehara Kabupaten Sabu Raijua)

By:
Desriyanti Sarilestari Djami Hau[1], Maria Bano[2], Maria Fransiska Darlen[3], Selfius P.N. Nainiti[4]
[1,2,3,4)]Agribusiness Study Program, Faculty of Agriculture, Universitas Nusa Cendana
Email: desriyantidjh@gmail.com

Received: 4th May, 2025 Accepted: 12th May, 2025

ABSTRACT

This research aims to analyze the price competitiveness of seaweed farming in Lederaga Village, Hawu Mehara District, Sabu Raijua Regency. The research method uses a quantitative approach with a simple random sampling technique of 30 farmers (20% of the population). Data analysis includes qualitative descriptive analysis, cost and income analysis, and SWOT analysis. The research results show that the seaweed cultivation effort using the bottom release method has an average annual income of IDR 18,602,325.63 per farmer, per year, with a production process spanning 3 seasons, indicating that this effort is classified as profitable.The strengths of the business lie in its strategic location, simple cultivation techniques, and the availability of skilled local labor. The main weaknesses include limitations in post-harvest technology and market price fluctuations. Opportunities that can be utilized include the high demand in domestic and international markets as well as the potential for creating new jobs. However, this effort also faces serious threats such as climate change, limited access to modern technology, and farmers' dependence on middlemen. The recommended strategy is to leverage strengths to seize market opportunities and increase production capacity through training and the establishment of supportive institutions.

Keywords: Price Competitiveness, Seaweed, SWOT

ABSTRAK

Penelitian ini bertujuan untuk menganalisis daya saing harga usaha budidaya rumput laut di Desa Lederaga, Kecamatan Hawu Mehara, Kabupaten Sabu Raijua. Metode penelitian menggunakan pendekatan kuantitatif dengan teknik simple random sampling terhadap 30 orang petani (20% dari populasi). Analisis data meliputi analisis deskriptif kualitatif, analisis biaya dan pendapatan, serta analisis SWOT. Hasil penelitian menunjukkan bahwa usaha budidaya rumput laut dengan metode bottom release memiliki pendapatan rata-rata per tahun sebesar Rp18.602.325,63 per petani, per tahun, dengan proses produksi selama 3 musim, menunjukkan bahwa usaha ini tergolong menguntungkan. Kekuatan usaha terletak pada lokasi yang strategis, teknik budidaya yang sederhana, dan tersedianya tenaga kerja lokal yang terampil. Kelemahan utama meliputi keterbatasan teknologi pasca panen dan fluktuasi harga pasar. Peluang yang dapat dimanfaatkan meliputi tingginya permintaan di pasar domestik dan internasional serta potensi penciptaan lapangan kerja baru. Namun, usaha ini juga menghadapi ancaman serius seperti perubahan iklim, terbatasnya akses terhadap teknologi modern, dan ketergantungan petani terhadap tengkulak. Strategi yang disarankan adalah memanfaatkan kekuatan untuk meraih peluang pasar dan meningkatkan kapasitas produksi melalui pelatihan dan pembentukan lembaga pendukung.

Kata Kunci: daya saing harga, rumput laut, SWOT

INTRODUCTION

Seaweed (algae) belongs to the group of lower plants that contain chlorophyll. This organism has a unique morphological structure, where true roots, stems, and leaves are not present—instead, it only has parts resembling stems known as thallus.

Sabu Raijua Regency, located in East Nusa Tenggara Province, is identified as a promising area for the development of *Eucheuma cottonii* seaweed cultivation. This island region is surrounded by vast stretches of ocean, but its marine potential has not yet been fully utilized. The waters in Sabu Raijua are characterized by a high level of cleanliness and low pollution, making them an ideal location for the development of *Eucheuma* seaweed farming.

According to statistical data on seaweed production in East Nusa Tenggara Province, particularly in the Sabu Raijua area, production trends have shown a fluctuating pattern. In 2020, production volume reached 80,703 tons, but it experienced consecutive declines in 2021 and 2022, down to 62,941 tons and 53,921 tons, respectively. Specifically, in Sabu Raijua Regency, the trend of dried seaweed production also showed various dynamics. In 2018, total production was recorded at 3,015.03 tons. A significant increase occurred in 2020, with production reaching 7,010.32 tons. However, a drastic decline followed in 2022, with production falling to 4,077.56 tons (*BPS NTT, 2023*).

The volume of wet seaweed production also decreased—from 18,011,280 tons in 2021 to 15,791,090 tons in 2023. A similar pattern was seen in dried seaweed production, where output declined from 2,260,285 tons in 2021 to 1,888,642 tons in 2023. The significant drop throughout 2023 has been identified as a result of pest attacks that interfered with seaweed growth in cultivation areas. These pest disturbances have become a major factor affecting the productivity of seaweed farmers in the region.

In seaweed farming, the main challenges commonly faced by farmers are pests and diseases. According to Maufa (2023), the presence of pests and diseases can cause severe damage to seaweed, even leading to death of the plants and ultimately crop failure. In 2021, seaweed prices ranged from IDR 30,000–35,000 per kg, but in recent years, prices have dropped significantly to around IDR 10,000–12,000 per kg.

Meanwhile, from the disease perspective, the ice-ice phenomenon is considered a serious threat, especially during seasonal transitions. This disease is characterized by the breaking of the seaweed thallus, which is then followed by tissue rot (*Emola, 2021; Wahyuni, 2023*). Based on the background described above, the objectives of this research are, this research aims to: 1) Describe the characteristics of seaweed farming and the price competitiveness of seaweed in Lederaga Village, Hawu Mehara Subdistrict, Sabu Raijua Regency, 2) Analyze the income generated from seaweed farming in Lederaga Village, Hawu Mehara Subdistrict, Sabu Raijua Regency, and 3) Identify appropriate strategies to improve the price competitiveness of seaweed in Lederaga Village, Hawu Mehara Subdistrict, Sabu Raijua Regency.

RESEARCH METHODOLOGY

The research was conducted over a period of one month, specifically in March 2025. The research location was selected in the coastal waters of Lederaga Village, located in Hawu Mehara Subdistrict, within the administrative area of Sabu Raijua Regency.

The population in this study consisted of all seaweed farmers in Lederaga Village, totaling 150 individuals. Sampling was carried out using simple random sampling technique, with a total sample size of 30 people, representing 20% of the total population. This sampling method was chosen to obtain representative data on the characteristics and seaweed farming practices in the village. The study was conducted using a survey method, with the following techniques:

1. Observation: Direct field observations were conducted to obtain information about the conditions and farming practices used by seaweed farmers.
2. Interviews: In-depth interviews were carried out with seaweed farmers as respondents to gather information on business characteristics, income, production costs, and factors affecting price competitiveness. These interviews were guided by a structured questionnaire.

3. Documentation: Collection of secondary data from various sources, such as statistical reports, policy documents, and literature studies related to seaweed cultivation and price competitiveness analysis.

The data obtained from this research were analyzed using the following methods:

1. Descriptive Analysis: Used to describe the characteristics of seaweed farmers and their farming businesses, including age, education, experience, and income.
2. Cost and Income Analysis: Used to calculate the total production costs and income from seaweed farming activities. The formula used is (Mahsyura, 2022):

   Income = Total Revenue – Total Cost
3. SWOT Analysis

   In the IFAS (Internal Factor Analysis Summary) matrix, the total weighted average score ranges from a low of 1.0 to a high of 4.0**,** with an average benchmark of 2.5. If the total average score is below 2.5**,** it indicates that the business is internally weak**,** whereas a score above 2.5 signifies a strong internal position. Meanwhile, in the EFAS (External Factor Analysis Summary) matrix, the highest possible total score is 4.0**,** and the lowest is 1.0**.** A score of 4.0 indicates that the business effectively responds to existing opportunities and avoids threats, while a score of 1.0 suggests that the business strategies fail to take advantage of opportunities or to avoid external threats.

RESULTS AND DISCUSSION

Respondent Characteristics

The respondents in this study are seaweed farmers located in Lederaga Village, Huwa Mehara District. A total of 30 respondents were selected as samples, categorized by characteristics such as gender, age, education level, and experience in seaweed farming.

Gender-Based Characteristics

The majority of respondents are male (73.3%), while females make up only 26.67%. This indicates that seaweed farming activities are predominantly carried out by men, possibly due to social and cultural factors in the region.

Age-Based Characteristics

Younger farmers tend to be more open to innovation and more likely to adopt new practices in their farming (Andini et al., 2013). The average age of the farmers is 39 years, with most (36.67%) falling within the 36–45 age range. This age range indicates that most farmers are in the productive age category, which allows them to engage physically in farming activities. According to Nurhaskin (2013), the productive age for humans is between 15–64 years.

Education-Based Characteristics

Education can be understood as a process that individuals go through to improve their knowledge, skills, and attitudes. In Lederaga Village, the education level among seaweed farmers is relatively low, with 73.3% having only completed elementary school. This suggests that farmers' knowledge and skills in seaweed cultivation still need to be enhanced through education and training. Low education levels can hinder the expansion and efficiency of seaweed farming (Husdila et al., 2024; Sukrin et al., 2025).

Experience-Based Characteristics

Experience in farming reflects a person's work capability. The findings show that the average farmer has 16 years of experience in seaweed farming. This long experience equips farmers with expertise in cultivation techniques, although their understanding of modern technology remains limited. According to Soekartawi (2003), this long-standing involvement in seaweed farming makes it easier for farmers to adopt recommendations from extension services and new technology.

Land Area (Length of Line Spread)

In Lederaga Village, the seaweed farming lines range from 13 to 30 meters in length, with 35–50 lines spaced 30 cm to 1 meter apart. Land is a critical factor in seaweed cultivation—larger land areas lead to greater productivity (Ambaritas & Kartika, 2015). These dimensions are considered ideal, as the ideal line length for seaweed growth is 10–30 meters, with 25–30 cm between lines, and a total area of 10×100 meters or 20×50 meters (Indriyani et al., 2021).

Seaweed Marketing in Lederaga Village

Seaweed in Lederaga Village is sold in dried form at Rp13,000.00 per kilogram. This price reflects a moderate level of price competition in the village. The selling price significantly affects the profitability of seaweed farming. Key influencing factors include product quality and competition among middlemen. Moreover, seaweed seedlings are not easy to obtain, as they must be purchased from Raijua Island and East Sabu District.

The highest seaweed price, reaching Rp15,000/kg, is found in Jiwuwu Village, where the quality is very high. However, in Lederaga Village—the study site—the price only reaches around Rp13,000/kg. The lowest prices, about Rp10,000/kg, are due to lower quality such as dirty seaweed or white patches caused by the *ais-ais* disease. This suggests that price competition in Lederaga is moderate, with fairly good quality.

In Lederaga, prices are determined by middlemen who often make direct offers on the beach. If farmers were to sell outside the village themselves, transport costs would increase significantly. In terms of price competitiveness, seaweed in Lederaga has similar competitiveness, although it is lower compared to villages like Jiwuwu, which fetch Rp15,000/kg.

Although there is still large potential cultivation land, production has not reached optimal levels due to several constraints, such as limited capital, fluctuating selling prices, restricted market access, absence of farmer groups or cooperatives, and environmental risks like pests, disease, and extreme weather. Among these, extreme weather poses the greatest threat, often causing crop failure. Price instability also creates difficulties for farmers in selling their harvest.

Government Role and Support

Currently, there is little to no government involvement in seaweed farming in Lederaga. Farmers have not received training or extension services. Market prices are controlled by middlemen, leaving farmers with no authority over pricing. Harvested seaweed is treated as a uniform product with the same competitiveness in the eyes of buyers. Farmers urgently need access to high-quality seedlings, markets, infrastructure (such as roads and ports), capital assistance, and price regulation.

To support the economic welfare of seaweed farmers, the government needs to take an active role by providing capital assistance, setting a base price for dried seaweed, facilitating market access, and delivering training or extension services to farmers.

Production Costs and Seaweed Farming Income

The breakdown of production costs incurred by seaweed farmers in Lederaga Village is shown in Table 1.

Table 1. Variable Cost and Fixed Cost by Seaweed Farmers in Lederaga Village per Year

Cost Components	Total Cost per Year (IDR)	Average Cost per Year per Farmers (IDR)
Fixed Cost (Depreciation)		
Large rope	1.923.710,00	64.124,67
Small rope	480.000,00	16.000,00
Iron crossbar / Iron rod	3.534.000,00	228.000,00
Iron stake	40.880.000,00	1.362.666,67
Large hammer	1.717.000,00	57.233,33
Netting	416.000,00	13.866,37
Floats	412.000,00	13.733,33
Styrofoam / Cork	11.650.000,00	388.333,33
Drying rack	1.620.000,00	54.000,00
Plastic drum	1.253.000,00	41.766,67
Sack / Packaging bag	3.004.500,00	100.150,00
Total	**66.890.210**	**2.339.874,37**
A. Variable Cost		
Seedlings	121.800.000,00	4.060.000,00
Labor	86.937.000,00	2.897.900,00
Transportation	9.000.000,00	300.000,00
Maintenance	4.095.000,00	136.500,00
Post-harvest	4.380.000,00	146.000,00

Miscellaneous costs	22.320.000,00	744.000,00
Total	**248.532.000,00**	**8.284.400,00**
Total (A+ B)	**315.422.210,00**	**10.624.274,37**

Note: Farming season lasts for 2 months; April–May, June–July, September–October
Source: Data Analysis, 2025

It can be seen that the fixed cost per season is IDR 22,296,737, while the variable cost per season is IDR 82,844,000, resulting in a total seaweed farming cost per season of IDR 105,140,737. The average total fixed and variable costs per year per farming plot amount to IDR 10,624,274.37, consisting of variable costs for three production seasons totaling IDR 8,284,400, and fixed costs of IDR 2,339,874.37. This value was obtained by dividing the total annual cost by 30 farmers, resulting in the average annual cost per farmer. Income is the difference between the total revenue earned and the costs incurred. The average total income of seaweed farmers in Lederaga Village over three production periods is shown in Table 2.

Table 2. Seaweed Farming Income in Lederaga Village

No	Description	Total per Season	Average per Season per Year	Total per Year	Average per Year per Farmer
1	Production Cost	IDR 105.140.737	IDR 3.504.691	IDR 315.422.210,00	IDR 10.624.274,37
2	Total Production	22923 kg	765 kg	67.446 kg	2249 kg
3	Revenue	IDR 297.999.000	Rp9.933.300	IDR 876.798.000	IDR 29.226.600
4	Income	IDR 192.858.263	IDR 6.428.609	IDR 561.375.790	IDR 18.602.325,63

Source: Data Analysis, 2025

Table 2 shows that the average total income received by seaweed farmers over three production cycles is IDR 18,602,325.63 per farmer, obtained from an average revenue of IDR 29,226,600 per farmer, reduced by the average total cost of IDR 10,624,274.37 per farmer. This is based on an average production of 2,249 kg per farmer and an average selling price of IDR 13,000 per kg.

SWOT Analysis

Rangkuti (2004) explains that SWOT analysis is a systematic method used to identify various factors involved in formulating a company's strategy. This analysis is based on the principle of maximizing strengths and opportunities, while minimizing weaknesses and threats.

SWOT analysis identifies various factors that influence the competitiveness of the seaweed farming business:

1. Strengths:
   a. Simple cultivation techniques allow farmers to easily apply farming practices.
   b. A strategic geographic location supports seaweed growth with favorable water conditions.
   c. The availability of skilled local labor accelerates the cultivation process.
2. Weaknesses:
   a. Limited post-harvest technology reduces the added value of the products.
   b. The risk of *ais-ais* disease outbreaks can decrease both the quality and quantity of the harvest.
   c. Unpredictable price fluctuations affect the income stability of farmers.
3. Opportunities:
   a. High market demand for seaweed, both locally and internationally, opens greater business opportunities.
   b. The development of seaweed farming can create new job opportunities for coastal communities.
4. Threats:
   a. Climate change and extreme weather conditions can disrupt the seaweed cultivation process.
   b. Limited access to technology for farmers may hinder production improvements.
   c. Dependence on middlemen reduces farmers' bargaining power in determining selling prices.

Table 3. SWOT Analysis

Internal Factors / External Factors	STRENGHT (S)	WEAKNES (W)
	1. Simple and easy cultivation techniques 2. Strategic geographic location and large potential farming area for seaweed cultivation 3. Fast post-harvest process 4. Availability of local labor 5. Affordable and accessible facilities and infrastructure	1. Limited post-harvest technology leading to product loss 2. Risk of pest attacks such as *ais-ais* disease that reduce product quality 3. Unpredictable fluctuations in seaweed prices
OPPORTUNITIES (O)	**SO**	**WO**
1. Creation of new job opportunities 2. High demand for seaweed 3. Increased community income	1. Optimize water conditions and human resources to expand seaweed cultivation. 2. Establish cooperatives to broaden market access and increase income. 3. Improve production through local training based on farmers' experiences.	1. Propose assistance programs or CSR partnerships for equipment and technology. 2. Collaborate with training institutions to educate farmers. 3. Develop access to local/regional digital markets.
THREATS (T)	**ST**	**WT**
1. Climate factors 2. Seasonal changes 3. Limited access to technology for farmers 4. Lack of government support 5. Limited market access 6. Dependence on middlemen, which reduces farmers' bargaining power	1. Develop a climate and water quality monitoring system based on local wisdom. 2. Build collaboration among farmers to cope with price fluctuations and reduce dependence on middlemen. 3.	1. Diversify processed seaweed products to reduce dependence on raw product prices 2. Prepare additional drying facilities/tools for use during bad weather 3. Lobby local government for infrastructure improvements and pest control training

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the research conducted in Lederaga Village, Hawu Mehara District, the following conclusions can be drawn:

1. The seaweed farming business in Lederaga Village is characterized by the utilization of coastal land using simple cultivation methods and affordable capital, specifically the off-bottom method.
2. The farming income for three production periods, with an average land area of 775.25 m², is IDR 29,226,600, while the production cost is IDR 10,866,904. Thus, it can be concluded that seaweed farming in Lederaga Village is profitable, with an annual income of IDR 18,359,693 per farmer.
3. The most appropriate strategy for developing Eucheuma cottonii seaweed farming using the off-bottom method in Lederaga waters is to optimize the existing production capacity to scale up the business, expand the farming area, and enhance technical cultivation skills to increase productivity. This should be done while maintaining management commitment to product quality and promoting it among all seaweed farmers. The SWOT matrix shows that the strongest strategy lies in leveraging strengths to seize existing opportunities.

Recommendations

The following recommendations are offered based on the research conducted in Lederaga Village:

1. For Seaweed Farmers: Seaweed farmers are encouraged to adopt broader innovations in the drying process, such as the development of cabinet-type solar drying technology. Implementing this technology is believed to enhance seaweed quality during drying and offers ease of

construction due to its appropriate technology base. Additionally, using local materials and involving local labor makes this method more cost-effective and practical for farmers.

2. For the Government: The local government should facilitate the establishment of institutions or cooperatives specifically to support the needs of Eucheuma cottonii seaweed farming using the off-bottom method in Hawu Mehara waters.
3. For Future Researchers: Future researchers are encouraged to further investigate risk management strategies to address or minimize potential risks, and to conduct a deeper competitiveness analysis using quantitative methods, so that the results can more accurately reflect the conditions in the research area.

REFERENCES

Andini NK, Nilakusmawati DPE, Susilawati M. (2013). Faktor-Faktor Yang Memengaruhi Penduduk Lanjut Usia Masih Bekerja. *Jurnal Kependudukan dan Pengembangan Sumber Daya Manusia.*

Anggadiredja, J.T., Zatnika, A., Purwoto, H., & Istini, S. 2008. Rumput laut, pembudidayaan, pengolahan, dan pemasaran komoditas perikanan potensial. Penebar Swadaya. Jakarta.

Badan Pusat Statistik (BPS) Kabupaten Sabu Raijua. 2024. Kabupaten Sabu Raijua Dalam Angka 2024. Sabu Raijua: Badan Pusat Statistik Kabupaten Sabu Raijua.

Badan Pusat Statistik (BPS) Kecamatan Hawu Mehara. 2024. Kecamatan HawuM Mehara Dalam Angka 2024. Sabu Raijua: Badan Pusat Statistik Kabupaten Sabu Raijua.

Badan Pusat Statistik (BPS) Provinsi Nusa Tenggara Timur. 2023. Provinsi Nusa Tenggara Timur Dalam Angka 2024. Kupang: Badan Pusat Statistik Provinsi Nusa Tenggara Timur.

Fatimah, Fani & Tumpal Pangihutan Situmorang. (2023). Strategi Pengembangan Usaha Budidaya Rumput Laut Dalam Meningkatkan Produksi Di Desa Kaliuda Kecamatan Pahunga Lodu. Sumba: *Innovative: Journal of Social Science Research Volume 3 Nomor 3 Tahun 2023 Page 4331-4348 E-ISSN 2807-4238 and P-ISSN 2807-4246 Website: https://j-innovative.org/index.php/Innovative*

Haga, Pelipis Pilo, Wiendiyati & Sondang S. P. Pudjiastuti. (2022). Analisis Daya Saing Usaha Budidaya Rumput Laut (Eucheuma Cottonii) Di Kecamatan Hawu Mehara Kabupaten Sabu Raijua. Kupang: *Jurnal Excellentia (p-ISSN:2301-6019) hal 9 Volume XI No 1, Juni 2022*

Haga, Pelipus Pilo. (2021). *Analisis Daya Saing Usaha Budidaya Rumput Laut (Eucheuma Cottonii) Di Kecamatan Hawu Mehara Kabupaten Sabu Raijua.* Kupang: Skripsi.

Hasna, Sri Mardiyati, A Rosdianti Razak & Mohammad Natsir. (2021). *Inovasi Teknologi dalam Pengelolaan Budidaya Rumput Laut untuk Meningkatkan Produktivitas di Wilayah Pesisir Indonesia*. *Jurnal Ilmiah Kelautan dan Perikanan, Vol. 8, No. 2, 2021, ISSN: 2735-9512*

Husdila, Bahari & Weka. (2024). Analisis Pendapatan dan Kelayakan Usahatani Rumput Laut Berdasarkan Skala Usaha di Desa Bakealu Kecamatan Wakorumba Selatan Kabupaten Muna. *Jurnal Penelitian Ilmu-Ilmu Sosial, Vol. 1, No. 12, 2024 pp. 461-472,* ISSN: 3025-6704 (e) https://doi.org/10.5281/zenodo.12807108

Indriyani, Sri, Hadijah, Erni Indrawati. (2021). *Potensi Budidaya Rumput Laut Studi Perairan Pulau Sembilan Kabupaten Sinjai Sulawesi Selatan*. Gowa: Cv. Berkah Utami.

Mahsyura. (2022). Analisis Pendapatan Usahatani Rumput Laut Di Kelurahan Mariorennu Kecamatan Gantarang Kabupaten Bulukumba. Universitas Bosowa Makassar. Skripsi.

Nurhasikin (2013). Penduduk usia produktif dan ketenagakerjaan. http://kepri.bkkbn.go.id/Lists/Artikel/DispForm.aspx?ID=144.Diakses April 2022.

Rangkuti, F. (2013), *Teknik Membedah Kasus Bisnis Analisis SWOT Cara Perhitungan Bobot, Rating, dan OCAI*. Jakarta: PT. Gramedia Pustaka Utama.

Rangkuti, F., & Analisis, S. W. O. T. (2018). *Teknik Membedah Kasus Bisnis Cara Perhitungan Bobot, Rating, dan Ocai*. Jakarta: Pt Gramedia.

Sofyan, Ramadyan, F., & Sanggabuana, M. S. (2023). *Kajian Kerentanan Iklim Partisipatif Desa Lederaga*. Yayasan Konservasi Alam Nusantara (YKAN).

Zainuddin & Aditya Wardhana. (2024). *Metode Penelitian*. Jawa Tengah: Cv. Eureka Media Aksara

Zulfikar, Rizka, Fifian Permata Sari, Anggi Fatmayati, Kartika Wandini, Tati Haryati, Sri Jumini, Nurjanah, Selvi Annisa, Oktavy Budi Kusumawardhani, Rif'atul Mutiah, Alexander

Indrakusuma Linggi & Hafid Fadilah. (2024). *Metode Penelitian Kuantitatif (Teori, Metode Dan Praktik).* Banjarmasin: Widina Media Utama.