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Analysis of Trash Fish Meal Processing Business at PT Samudera Mandiri Sentosa, Halang Muka Island Village, Kubu Babussalam Subdistrict, Rokan Hilir, Riau Province

Analisis Usaha Pengolahan Tepung Ikan Rucah di PT. Samudera Mandiri Sentosa Desa Pulau Halang Muka Kecamatan Kubu Babussalam Kabupaten Rokan Hilir Provinsi Riau

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Abstract

In the trash fish meal processing business, fish catch constraints are decreasing yearly, so conducting a business feasibility analysis is necessary. This study aims to analyze the total investment, revenue, and profit and explore the feasibility of the trash fish meal processing business in Halang Muka Island Village, Kubu Babussalam Subdistrict, Rokan Hilir Regency. The methods used in this study are case study methods, analyzing secondary data by directly observing objects in the field, and collecting data through direct interviews with trash fish meal processing business owners PT. Samudera Mandiri Sentosa through a descriptive-quantitative approach. The informant in the study was the owner of PT Samudera Mandiri Sentosa as the main informant source. The results of this study are: 1) Total Investment of IDR 897,143,600 with a fixed capital share of IDR 892,900,000 and working capital of IDR 4,234,600, 2) Revenue of IDR 1,372,800,000 per year, profit of IDR 522,176,160, 3) Revenue Cost of Ratio (RCR) obtained a value of 1.61, Financial Rate of f Return (FRR) was 58.20% and the Payback Period of Capital (PPC) analysis got a result of 1.72. Based on the feasibility analysis, the trash fish meal processing business at PT Samudera Mandiri Sentosa follows existing criteria/provisions, and it can be concluded that this business is profitable and feasible to run. In the trash fish meal processing business, assistance must be provided with bookkeeping and business management.

Keywords: Business Feasibility, Fish Meal, Trash Meal

Abstrak

Pada usaha pengolahan tepung ikan rucah terdapat kendala jumlah tangkapan ikan yang semakin menurun setiap tahunnya, maka perlu dilakukan analisis kelayakan usaha. Penelitian ini bertujuan untuk mengalisis total investasi, besarnya penerimaan, dan keuntungan serta untuk mengalisis kelayakan usaha pengolahan tepung ikan rucah di Desa Pulau Halang Muka Kecamatan Kubu Babussalam, Kabupaten Rokan Hilir. Metode yang digunakan dalam penelitian ini yaitu metode studi kasus dan menganalisis data sekunder dengan melakukan pengamatan secara langsung terhadap objek di lapangan dan mengumpulkan data melalui wawancara langsung dengan pemilik usaha pengolahan tepung ikan rucah PT Samudera Mandiri Sentosa melalui pendekatan deskriptif-kuantitatif. Informan dalam penelitian adalah pemilik PT. Samudera Mandiri Sentosa sebagai sumber utama. Hasil penelitian ini yaitu: 1) Total Investasi sebesar Rp897.143.600 dengan bagian modal tetap

sebesar Rp892.900.000 dan modal kerja sebesar Rp4.234.600, 2) penerimaan sebesar Rp1.372.800.000/tahun, keuntungan sebesar Rp522.176.160, 3) *Revenue Cost of Ratio* (RCR) memperoleh nilai sebesar 1,61, *Financial Rate of Return* (FRR) sebesar 58,20% dan, pada analisis *Payback Period of Capital* (PPC) mandapatkan hasil sebesar 1,72. Sehingga berdasarkan analisis kelayakan pada usaha pengolahan tepung ikan rucah di PT. Samudera Mandiri Sentosa sudah sesuai dengan kriteria/ketentuan yang sudah ada dan dapat diambil kesimpulan bahwa usaha ini menguntungkan dan layak untuk dijalankan. Pada usaha pengolahan tepung ikan rucah perlu dilakukan pendampingan dalam pembukuan dan manajemen usaha sehingga usaha yang dikembangkan dapat dikelola dengan baik.

Kata kunci: Kelayakan Usaha, Tepung Ikan, Ikan Rucah

1. Introduction

Halang Muka Island Village is one of the villages in Kubu Babussalam District, Rokan Hilir Regency, Riau Province, whose residents' livelihood is mostly as fishermen and processing catch. The waters of Halang Muka Island Village produce a large enough fish catch, so from the results of large capture fisheries, the use of catch processing is needed. There are main catches and by-catches from these catches where the by-catch is also called trash fish.

One of the factories that produces the largest trash fish processing in Halang Muka Island Village is PT Samudera Mandiri Sentosa. The factory that processes trash fish into trash fish meals was established in 2017 and has 13 employees. This factory can produce processed trash fish meal with a total production of up to 250 tons/year or 15-22 tons/month. The processed raw materials will produce 70% trash fish meal in processing. PT Samudera Mandiri Sentosa can operate as many as ten times a month, and the production costs incurred are IDR 53,000,000 - 79.000,000 in one month of production. The trash fish meal processing results are marketed to Tanjungbalai, Jakarta, Jambi, and other parts of Indonesia.

Trash fish is a by-product of the main fish processing from by-catch, which is considered to have no economic value, so it tends not to be processed and disposed of by processors or fishermen. This type of fish has a high enough protein content, so it can be processed into a product by utilizing by-products, applying the concept of zero waste, and increasing added value. One solution that can be done to overcome this is to use trash fish as raw material for trash fish meal (Pratiwi et al., 2021).

In the trash fish processing business in Halang Muka Island Village, some challenges arise when raw materials for trash fish meals decrease during certain months, primarily due to the limited fishing season. The production of trash fish meal is inconsistent, varying from year to year. The decline in trash fishmeal production will impact the financial viability of the trash fishmeal business at PT Samudera Mandiri Sentosa. Therefore, it remains uncertain whether the trash fish processing business in Halang Muka Island Village is viable because of the unexpected cost fluctuations.

2. Material and Method

2.1. Time and Place

This research was conducted in February 2023 in Halang Muka Island Village, Kubu Babussalam Subdistrict, Rokan Hilir Regency. This location was chosen purposively considering that this area is one of the trash fish meal processing sites in Kubu Babussalam Subistrict.

2.2. Methods

The methods used in this study are case study and analyzing secondary data by directly observing objects in the field and collecting data through direct interviews with trash fish meal processing business owners PT Samudera Mandiri Sentosa through a descriptive-quantitative approach. According to Robert (2013), a case study is a source of knowledge that investigates phenomena in real-life contexts where the boundaries between phenomena and contexts are not visible, and multiple sources of evidence are utilized.

2.3. Procedure

In a study conducted by Afrizal (2016), it was noted that research informants play a crucial role in providing valuable information to researchers and in-depth interviewers. Based on the available data, it can be inferred that an informant is an individual who possesses extensive knowledge about the subject under investigation and is

sought out for information regarding the research topic. The informant in the study was the owner of PT Samudera Mandiri Sentosa, who served as the main source of information.

Primary data was obtained through direct interviews and field documentation. The interview was conducted by asking direct questions to informants through questionnaires. Secondary data refers to analyzing existing data, eliminating the need for interviews, surveys, observations, and other data collection techniques. Secondary data sources are obtained from the monthly reports of companies and agencies involved in the trash fishmeal processing business at PT Samudera Mandiri Sentosa.

2.4. Data Analysis

2.4.1. Investment

According to Handjojo et al. (2018), investment means investing a certain amount of funds (capital) in a certain time by expecting a return on investment accompanied by expected profits in the future. The total investment can be written by formula (Hamdi et al., 2016):

$$TI = MT + MK$$

Description:

TI = Total investment
MT = Fixed capital
MK = Working capital

2.4.2. Cost, Revenue, and Profit

According to Suratiyah (2015), the formula used for calculating the cost is:

$$TC = FC + VC$$

Description:

TC = Total Cost (IDR)
FC = Fixed Cost (IDR)
VC = Variable Cost (IDR)

Total revenue can be calculated using the following formula, according to Suratiyah (2015).

$$TR = P \times Q$$

Description:

TR = Total revenue (IDR)
Q = Total production of trash fish meal (kg)
P = Price of trash fish meal (IDR)

Profit is obtained from revenue minus the total cost incurred for production with the following formula (Suratiyah, 2015).

$$\pi = TR - TC$$

Description:

TR = Total revenue (IDR/year)
TC = Total cost (IDR/year)

2.4.3. Feasibility

Revenue Cost Ratio compares gross revenue and total costs incurred. RCR is used to see a business's feasibility. The greater the value of RCR, the more feasible the business is. The formula used is (Yulianti et al., 2016):

$$RCR = TR / TC$$

Description:

TR = Total revenue
TC = Total cost

By criteria: a. RCR > 1, the venture is profitable and worthy of extension; b. RCR < 1, the business suffered a loss and could not continue. c. RCR = 1, then the effort suffers from the point of Break-even. Financial Rate of Return is the percentage ratio between profit (π) and total investment (IT) used.

$$FRR = NI/I \times 100\%$$

Description:

NI = Net income
I = Investment

By criteria: FRR > Bank, loan interest rates are applicable; therefore, the business offers advantages for the investment made and should be considered for investment. FRR < Bank loan interest rates are applicable; therefore, it would be more profitable to deposit the business investment into the bank (Hendrik, 2013).

The payback period of capital is an analysis used to see the length of return on working capital (Hendrik, 2013). The payback Period of Capital measures how quickly an investment can return. The sooner a business can return investment costs, the better the capital turnover for the business (Nurmalina et al., 2018). Here is the PPC formula, namely:

$$PPC = TI / JI \times period$$

Description:

PPC = Payback Period of Capital
TI = Total investment
JI = Profit
Periode = length of production time

Decision criteria: If the value of the payback period > the economic life, the investment is deemed unacceptable. The investment is accepted if the value of the payback period < the economic life. According to Nainggolan (2018), the payback period method uses specific assessment criteria. The project is accepted if the payback period is shorter than the maximum time required. On the other hand, if the payback period exceeds the required time, the investment is rejected.

3. Result and Discussion

3.1. Total Investment

Fixed capital is the number of costs invested in the purchase (procurement of assets) or goods (equipment) that are not exhausted in one production process. However, it can be used repeatedly for an extended period (Afif, 2015). The fixed capital of PT Samudera Mandiri Sentosa's trash fish meal processing business can be seen in Table 1.

Table 1. Fixed capital of trash fish meal processing business at PT Samudera Mandiri Sentosa

No.	Information	Amount	Unit	Price (IDR)	Total Price (IDR)
1.	Building	1	Piece	850.000.000	850.000.000
2.	Scales	1	Piece	7.000.000	7.000.000
3.	Grinding Machine	1	Piece	20.000.000	20.000.000
4.	Squeezer Sweep	30	Pieces	100.000	3.000.000
5.	Barrel	2	Pieces	800.000	1.600.000
6.	Rattan Baskets	25	Pieces	300.000	7.500.000
7.	Goldening Tools	1	Piece	800.000	800.000
8.	Shovels	5	Pieces	100.000	500.000
9.	Carts	10	Pieces	250.000	2.500.000
Total Fixed Capital					892.900.000

The fixed capital used by PT Samudera Mandiri Sentosa consists of several components such as buildings, scales, grinding machines, broom barrel borers, rattan baskets, packaging tools, shovels, and carts. The fixed capital PT Samudera Mandiri Sentosa uses is IDR 892,900,000 in total, with the largest cost being building costs.

Working capital is very important for the continuity of company operations because the funds are used to finance the purchase of raw materials, pay employee wages, manage the inventory of goods, and carry out daily operational activities. The working capital of PT. Samudera Mandiri Sentosa's trash fish meal processing business can be seen in Table 2.

Table 2. Working capital of trash fish meal processing business at PT. Samudera Mandiri Sentosa

No.	Information	Amount	Unit	Price (IDR)	Total Price (IDR)
1.	Trash Fish	3.000	kg	1.000	3.000.000
2.	Salt	600	kg	1.200	720.000
3.	Electricity Cost	-	-	-	350.000
4.	Bags	15	Pieces	240	3.600
5.	Diesel	25	L	6.800	170.000
Total working capital					4.243.600

Table 2 shows that the working capital used by PT Samudera Mandiri Sentosa factory consists of trash fish, salt, electricity costs, jute sacks, diesel, and employee wages. The working capital amounted to IDR 4,243,600, and the highest working capital was trash fish. Total investment in the trash fishmeal processing business is the sum of fixed and working capital. The total investment of PT Samudera Mandiri Sentosa's trash fish meal processing business can be seen in Table 3.

Table 3. Total investment in trash fish meal processing business at PT Samudera Mandiri Sentosa

No	Types of Capital	Amount (IDR)
1	Fixed capital	892.900.000
2	Working capital	4.243.600
	Total Investment	897.143.600

The information in Table 3 shows that the total investment spent on processing trash fish meal in this factory amounted to IDR 897,143,600. This is in line with previous research conducted by Pratiwi et al. (2021) that this total investment is spent at the beginning of the trash fishmeal processing plant so that it can run in the future to make a profit, the greater the investment, the increase in profits obtained.

3.2. Revenue and Profit

The total cost is the fixed and variable costs incurred to produce trash fishmeal in a certain period. The total cost of PT Samudera Mandiri Sentosa trash fish meal processing business can be seen in Table 4.

Table 4. Total cost of trash fish meal processing business at PT Samudera Mandiri Sentosa

Moon Production	Variable Cost (IDR)	Fixed Cost (IDR)	Total Cost (IDR)
January	38.874.000	38.154.333	77.028.333
February	41.355.440	38.154.333	79.509.773
Maret	36.392.560	38.154.333	74.546.893
April	38.874.000	38.154.333	77.028.333
From	40.114.720	38.154.333	78.269.053
June	38.874.000	38.154.333	77.028.333
July	35.063.440	38.154.333	73.217.773
Agustus	32.582.000	38.154.333	70.736.333
September	21.075.520	38.154.333	59.229.853
October	19.834.800	38.154.333	57.989.133
November	15.908.640	38.154.333	54.062.973
December	33.822.720	38.154.333	71.977.053
Total	392.771.840	457.852.000	850.623.840

Table 4 shows that the total production cost of trash fishmeal in 2022 produced by the factory amounted to IDR 850,623,840. In line with previous research conducted by Ramadhani & Arief (2021), the fixed costs of processing trash fishmeal are obtained from depreciation costs, maintenance costs, employee wages, and electricity costs, which are added up in total, while variable costs are obtained from the sum of all costs incurred during a year of trash fish meal production, which is included in variable costs, namely trash fish, salt, burlap sacks, and diesel.

Revenue is the amount of value or proceeds from the sale of trash fishmeal received in running a business. Suratiyah (2015) states that revenue is the multiplication between the production amount produced and the product's selling price. Business revenue is calculated based on revenue during a year of production. The sale of 1 kg of trash flour is sold at IDR 6,500. The revenue of PT Samudera Mandiri Sentosa's trash fish meal processing business can be seen in Table 5.

Table 5. Revenue of trash fish meal processing business at PT Samudera Mandiri Sentosa

Moon Production	Selling Price (IDR)	Total production (kg)	Total Revenue (IDR)
January	6.500	21.000	136.500.000
February	6.500	22.400	145.600.000
Maret	6.500	19.600	127.400.000
April	6.500	21.000	136.500.000
From	6.500	21.700	141.050.000
June	6.500	21.000	136.500.000
July	6.500	18.900	122.850.000
Agustus	6.500	17.500	113.750.000
September	6.500	11.200	72.800.000
October	6.500	10.500	68.250.000
November	6.500	8.400	54.600.000
December	6.500	18.000	117.000.000
Total Revenue			1.372.800.000

Table 5 shows that the total revenue 2022 generated from this plant in trash fish meal processing production is IDR 1.372.800.000. This aligns with previous research by Oktawati et al. (2019), which states that revenue is obtained from the sales of trash fish meal processing products during a year of production.

Profit is the net income obtained from the revenue of the trash fishmeal processing business after all costs are reduced in a certain period (Primyastanto, 2016). One year's profit obtained in the trash fishmeal processing business can be seen in Table 6.

Table 6. Advantages of trash fish meal processing business at PT Samudera Mandiri Sentosa

Moon Production	Revenue (IDR)	Total Cost (IDR)	Profit (IDR)
January	136.500.000	77.028.333	59.471.667
February	145.600.000	79.509.773	66.090.227
Maret	127.400.000	74.546.893	52.853.107
April	136.500.000	77.028.333	59.471.667
From	141.050.000	78.269.053	62.780.947
June	136.500.000	77.028.333	59.471.667
July	122.850.000	73.217.773	49.632.227
Agustus	113.750.000	70.736.333	43.013.667
September	72.800.000	59.229.853	13.570.147
October	68.250.000	57.989.133	10.260.867
November	54.600.000	54.062.973	537.027
December	117.000.000	71.977.053	45.022.947
Total	1.372.800.000	850.623.840	522.176.160

Table 6 shows that the profit in 2022 generated by this factory is IDR 522,176,160. According to Law No. 20 of 2008, PT Samudera Mandiri Sentosa is included as a small company because the company's profit is more than IDR 300,0000,000 in a year. In line with previous research conducted by Sartika (2020), this profit is obtained from the value of revenue reduced by the total costs incurred in the trash fishmeal production process in one year. Typically, higher profits are desirable as they can be used to reinvest in the business or saved by the owner.

3.3. Analysis of Trash Meal Processing Business at PT. Samudera Mandiri Sentosa

The revenue-cost ratio of the trash fish meal processing business at PT Samudera Mandiri Sentosa can be seen in Table 7.

Table 7. The revenue-cost ratio of the trash fish meal processing business at PT Samudera Mandiri Sentosa

No	Information	Total	RCR
1	Total Revenue (IDR)	1.372.800.000	1,61
2	Total Cost (IDR)	850.623.840	

Based on Table 7, it can be seen that the RCR produced at PT Samudera Mandiri Sentosa is 1.62. The results of this RCR show that this trash fishmeal processing business is worth continuing. The RCR results also show that the annual income obtained is greater than the total costs incurred in the trash fish meal processing business at PT Samudera Mandiri Sentosa, each of which is IDR 1. The costs incurred produce an income of IDR 1.61, so the fish meal waste processing business is worth doing. The financial rate of return of the trash fish meal processing business at PT Samudera Mandiri Sentosa can be seen in Table 8.

Table 8. Financial rate of return of trash fish meal processing business at PT Samudera Mandiri Sentosa

No	Information	Total	FRR (%)
1	Profit (IDR/Year)	522.176.160	58,20
2	Total Investment (IDR)	897.143.600	

Based on Table 8, it can be seen that the FRR value produced by the factory is 58.20%, where the FRR value is greater than the deposit interest rate at Bank Rakyat Indonesia (BRI) 7.25%, which means that the business is worth investing in the trash fish meal processing business at PT Samudera Mandiri Sentosa. This is in line with research conducted by Toariaunaldi et al. (2017), which states that if the value of FRR > bank deposit rates, then the investment should be made in the business, and if FRR < bank interest rates, then the investment should be saved to the bank because it will be more profitable. The payback period of the capital of the trash fishmeal processing business at PT Samudera Mandiri Sentosa can be seen in Table 9.

Table 9. Payback period of capital for trash fish meal processing business at PT Samudera Mandiri Sentosa

Information	Amount (IDR)
Profit (IDR/Year)	522.176.160
Total investment	897.143.600
Production period	1 Year
PPC	1.72

From Table 9, it can be seen that the PPC produced by PT Samudera Mandiri Sentosa is 1.72, which means that this trash fish meal business can return investment capital when the business has been running for approximately one year eight months, in line with prior research that is conducted by Nainggolan (2018) if the value of payback period > economic age then the investment is rejected. Suppose the value of the payback period < economic life, then the investment is accepted. The project is accepted if the payback period is shorter than the maximum time required. Conversely, the investment is rejected if the payback period exceeds the required time. The equipment used for the trash fish meal processing business has an economic life of 5.37 years. Based on the analysis, it is evident that the capital investment yields quick returns, indicating the viability of the fishmeal processing business at PT Samudera Mandiri Sentosa.

4. Conclusions

Based on the research results, the total investment in the trash fish meal processing business in PT Samudera Mandiri Sentosa amounted to IDR 897,143,600 with a fixed capital share of IDR 892,900,000 and working capital of IDR 4,234,600. The revenue of the trash fish meal processing business at PT Samudera Mandiri Sentosa IDR, 1,372,800,000 per year, earns as much as the revenue of each production increases and decreases. Likewise, the profit of the trash fish meal processing business at PT Samudera Mandiri Sentosa amounted to IDR 522,176,160. In the feasibility analysis of the trash fish meal processing business at PT Samudera Mandiri Sentosa, based on the Revenue Cost of Ratio (RCR) analysis obtained a value of 1.61, meaning that the RCR value obtained was large from 1, the business was feasible. It could be continued, in the Financial Rate of Return analysis (FRR) can be generated with a value of 58.20%, meaning that the FRR obtained is greater than the interest rate of the bank concerned, then the effort provides feasibility for the investment invested. The payback period of capital analysis gets a result of 1.72, which means if the value of PPC is small from Economic age, then the investment is accepted, with a return on working capital for approximately one year and eight months. So, based on this feasibility analysis, the trash fish meal processing business at PT Samudera Mandiri Sentosa follows existing criteria/provisions, and it can be concluded that this business is profitable and feasible to run.

5. Suggestion

This research suggests that to develop and increase the economic income of PT Samudera Mandiri Sentosa, it is better to develop other businesses such as fish oil processing and salted fish processing, and also the profits generated by PT Samudera Mandiri Sentosa will increase for the better.

6. References

Afif, F. (2015). *Analisis kelayakan usaha distribusi pembenihan ikan nila gesit (Studi: Unit Pembenihan Rakyat Citomi Desa Tanggulun Barat, Kec. Kalijati, Kab. Subang Jawa Barat).* Departemen Ekonomi Sumberdaya Lingkungan. Fakultas Perikanan dan Kelautan. Institut Pertanian Bogor. Bogor.

Afrizal, M.A. (2016). *Metode Penelitian kualitatif sebuah upaya mendukung penggunaan penelitian kualitatif dalam berbagai disiplin ilmu.* Raja Grafindo Persada. Jakarta.

Hamdi, H., Hendrik, H., Florina, F. (2016). Analisis usaha budidaya ikan lele sangkuriang (*Clarias* sp) pada Kelompok Bersatu di Kelurahan Tanjung Pauh Kecamatan Payakumbuh Barat Provinsi Sumatera Barat. *Jurnal Sosial Ekonomi Perikanan,* 1(1): 26-31

Handjojo, E.S., Syarief, R., Sugiyono, S. (2018). Analisis kelayakan bisnis teh papua *(Vernonia amygdalina). Jurnal Manajemen Pengembangan Industri Kecil Menengah,* 12(2): 145-150.

Hendrik, H. (2013). *Studi kelayakan proyek perikanan. Fakultas Perikanan dan Ilmu Kelautan.* Universitas Riau. Pekanbaru.

Munandar, A., Huda, N., Arirangga, M.V. (2019). Efisiensi penggunaan modal kerja pada PT Holcim Indonesia Tbk. *Jurnal Manajemen dan Keuangan*, 8(1): 89-98.

Nainggolan, O.V. (2018). Analisis kelayakan usaha mikro kecil dan menengah (UMKM) sepatu dan sandal di Bogor. *Jurnal Bina Akuntansi*, 5(1): 101-110.

Nurmalina, R., Sarianti, T., Karyadi, A. (2018). *Studi kelayakan bisnis*. PT Penerbit IPB Press. Bogor.

Oktawati, N.O., Susanty, A., Hermanto, H. (2019). Analisis keuntungan usaha pengolahan tepung ikan toman *(Channa micropeltes*) di Kota Samarinda. *Akuatika Indonesia*, 4(2): 53-56.

Pratiwi, S.A.T., Darwis, D., Hendri, R. (2021). Analisis finansial usaha budidaya ikan nila Desa Merangin Kecamatan Kuok Kabupaten Kampar Provinsi Riau (Studi Kasus: Keramba Yani). *Jurnal Sosial Ekonomi Pesisir, 2*(3): 24-30.

Primyastanto, M. (2016). Evapro (evaluasi proyek): *Teori dan aplikasi pada usaha pembesaran ikan Sidat (Anguilla sp)*. Universitas Brawijaya Press. Malang.

Ramadhani, I., Arief, H. (2021). Analisis usaha budidaya ikan lele (*Clarias* sp) pada kelompok budidaya di Kampung Buana Bakti Kecamatan Kerinci Kanan Kabupaten Siak. *Jurnal Sosial Ekonomi Pesisir*, *2*(4): 17-25

Robert, K.Y. (2013). *Studi kasus desain dan metode*. PT. Raja Grafindo Persada. Jakarta.

Sartika, E. (2020). *Analisis pendapatan dan kelayakan usaha pembuatan terasi udang rebon (Studi kasus: Desa Gosong Telaga, Kecamataan Singkil Utara, Kabupaten Aceh Singkil)*. Universitas Muhammadiyah Sumatera Utara.

Suratiyah, K. (2015). *Ilmu usaha tani*. Penebar Swadaya. Jakarta.

Toariaunaldi, M., Hendrik, H., Hamid, H. (2017). Prospek pengembangan usaha terasi di Pelabuhan Perikanan Pantai Kuala Tungkal Kabupaten Tanjung Jabung Barat Provinsi Jambi. *Jurnal Online Mahasiswa Fakultas Perikanan dan Ilmu Kelautan Universitas Riau*

Yulianti, S., Yulinda, E., Amrifo, V. (2016). The business analysis of green catfish (*Mystus nemurus*) enlargement on fish pond in Sungai Paku Village, Sub-District of Kampar Kiri, District of Kampar, Riau Province. *Jurnal Online Mahasiswa Fakultas Perikanan dan Ilmu Kelautan Universitas Riau.*