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Business Development Strategy of Smoked Tilapia Processing in Penatarsewu Village, Tanggulangin Sub-District, Sidoarjo District

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A B S T R A C T

This study aimed to assess the financial viability of the smoked tilapia business and develop a strategic plan for its expansion. Key variables analyzed in this business feasibility study include production cost, revenue, profit, breakeven point (BEP), investment cost, and payback period. The second variable is using SWOT analysis to determine the development strategy of smoked tilapia processing business. The results of the business feasibility study obtained a Payback Period value of 2.54, where the investment return period is 2 years and 5 months, so that the tilapia processing business is feasible and needs to be developed. The results of the SWOT analysis show the position of the business at coordinates (2.22:2.28) in Quadrant I which indicates that an aggressive strategy is the right approach. This is due to the dominance of strengths and opportunities, such as the availability of raw materials, the strategic location of the smoked tilapia village, and the support of the local government and fisheries extension workers who provide training and motivation to business actors

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INTRODUCTION

Tilapia (Oreochromis niloticus) is one type of freshwater fish that has a high economic value, so many cultivation centers are built in various regions. These centers generally utilize ponds, earthen ponds, and tarpaulin ponds for farming. Natural resource management in the Tanggulangin sub-district, especially in tilapia aquaculture, has very high potential. Tilapia is the main commodity in the Penatarsewu Village area to be processed into smoked tilapia products. The market demand is so high that it is carried out by husband and wife who share roles in the process from finding raw materials to marketing themselves(Andjar et al., 2021).

The need for raw materials in smoked tilapia processing is around 100-150 kg in each production. The production process is still traditional and has not paid attention to health and quality standards. Processing of smoked fish by placing fish on para-para and processing is still classified as traditional. Marketing of smoked tilapia is in demand at the local Traditional Market. Smoked tilapia plays an important role in the economic sector in Penatarsewu Village, Tanggulangin District. Smoked tilapia processing is one of the incomes that can boost the economy of Penatarsewu Village residents in Tanggulangin Subdistrict.

The purpose of the study was to determine the flow of the smoked tilapia processing process in carrying out business continuity and business existence; Analyze the financial aspects of smoked tilapia business viability; develop a smoked tilapia processing business development strategy plan.

LITERATUR REVIEW

Smoked tilapia products are one of the preservation processes with the smoking method, namely utilizing smoke from heating coals with the aim of reducing moisture content and killing bacteria in fresh fish. Fish preservation by smoking aims to store fish products longer than fresh fish. The decline in the quality of tilapia can be overcome through the cold smoking process to make it last longer than through the hot smoking process. This processing can add economic value from sales because it has its own distinctive taste in fish processing. The weakness of smoked products in the smoked fish village area of Penatarsewu Village, Tanggulangin District is still traditional and does not meet the standards for processing fishery products. The shelf life is still traditional so it needs to be neatly packaged and stored in the freezer so that it can increase the shelf life of smoked tilapia.

The process of smoking fish is a way to preserve fish by providing smoke from the embers will give the fish a distinctive taste. The aldehyde and phenol compounds contained in the smoke attached to the body of the fish result in the distinctive aroma and taste of fish smoke that depends on the raw materials for various combustion. The smoking process can use wood, coconut shells, coconut fiber, and kluek shells. In the fat of the fish skin, oxidation occurs in the smoking process, there are phenol elements attached. Phenols, aldehydes and organic acids contained in smoke can prevent microorganisms from multiplying.(Andjar *et al*., 2021). Preservation for a longer period of time in the process of smoking fish can be combined with preservatives or stored at low temperatures. (Christina Litaay *et al*, 2022).

The smoking conditions in the smoked fish village area are still traditionally due to many factors without considering food safety, hygiene and health factors. Related to the smoke produced in the smoke house, a chimney is used about 4 meters high to minimize air pollution. Carcinogenic compounds that can cause cancer also have a negative impact on workers who daily inhale smoke at fish smoking sites. The reality that occurs as a result of smoked fish products is in great demand because of its distinctive aroma and taste. .(Swastawati *et al*., 2013).

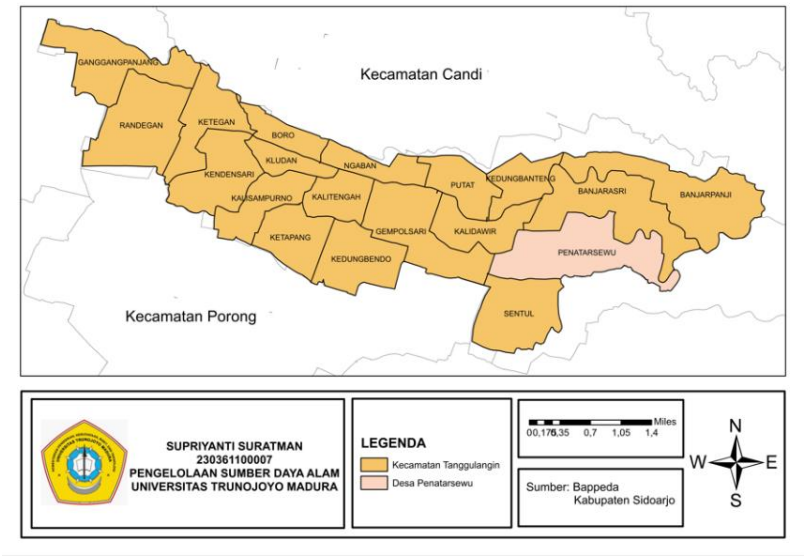
The smoked fish village in Penatarsewu Village, which produces smoked tilapia which is growing rapidly, has become a Sidoarjo commodity.(Hudi *et al*., 2021). Business actors engaged in the production of smoked tilapia are located in Pelataran Hamlet, Penatarsewu Village. These business actors face several problems, including: The marketing of products is still limited, the handling after the production process has not been neatly packaged, the storage area of the product is still limited, so the shelf life of fish is limited, the diversity of products needs to be diversified, and the high price of fish raw materials. The fuel factor in the processing of smoked tilapia is in the form of coconut shell waste and kluek shells in the fish smoking area. Coconut shells can produce good smoke compared to other fuels due to their long, slow burning and optimal heat. Coconut shells produce charcoal that has good and optimal combustion quality with limited air space. (Putri, 2022).

The revenue generated from the sale of fishery products is influenced by several variables to achieve productivity, including the price and availability of raw materials, costs and length of working hours as well as fuel used in the production process.(Subroto & Yasin, 2023). Optimization strategy in achieving productivity in the processing of smoked tilapia. Researchers can provide direction and understanding to business actors regarding better business management and product marketing to increase sales through digital marketing so that the reach is wider. Product timing also needs to be considered for product safety. The production process can meet the criteria according to the CPPB-IRT guidelines throughout the Indonesian people. Several aspects must be met, for example, production sites, production environments, PIRT facilities, production facilities must be clean and hygienic, smooth water supply, pest control, and hygiene from employees in the production process of smoked tilapia processing. The process of packaging and storing products must be controlled, the person in charge of the product is required to record and document training activities for employees. (Fuad *et al*., 2019).

A business feasibility study is the determination of an investment plan from the calculation of expected costs and benefits through a comparison of income and expenses, such as capital costs, availability of funds, the ability of the business to return funds within a specified time and an assessment of the business to continue to grow.(Karebet Gunawan, SE, 2018). The financial aspect plays an important role in determining the feasibility of the business from several analyses that produce accurate calculations and data accuracy of investment capital in comparing cost flows and their usefulness. (Madiyana, 2019).

METHODOLOGY

The research was conducted in the village of Penatarsewu smoked fish village Tanggulangin Sidoarjo. The research was conducted from June 2024 to October 2024.



Picture 1. Map of Penatarsewu Village

The approach in the research conducted on development strategies that can affect the productivity of processed smoked tilapia. The data taken are primary data and secondary data. In the context of a limited population of smoked tilapia processors, the simple random sampling technique is the appropriate choice to obtain a sample that represents the population.(Triyono, 2018). Sampling was taken from 20 people in the smoked tilapia village.

Influential factors are the volume of raw materials for tilapia production, the volume of fuel, the number of workers, smoking time, the volume of cooked smoked tilapia, the selling price of smoked tilapia(Yuliyarabihati et al., 2016).

Business feasibility analysis is the determination of an investment plan from the calculation of expected costs and benefits through a comparison of income and expenses such as capital costs, availability of funds, the ability of the business to return funds within a specified time and assessment of the business to continue to grow.

Decision making is influenced by financial aspects. The purpose of a business feasibility study is to conduct various analyses with precise and accurate calculations of investment capital by comparing the flow of costs and benefits associated with a business(Madiyana, 2019).

Production costs can be expressed mathematically among others:

$$TC = FC + VC$$

Description
TC = Total Cost (Total Cost / Production Cost)
FC = Fixed Cost
VC = Variable Cost

Mathematically, revenue can be formulated as follows:

$$TR = Q \; x \; P$$

Description:
TR: Total Revenue (Rp/year)
Q : Number of Products (Kg/year)
P : Product Price (Rp/Kg)

Mathematically, the profit (π) can be formulated as follows:

$$\pi = TR - TC$$

Description:
π : Profit (Rp)
TR: Total Revenue (Rp)
TC: Total Cost / Total cost (Rp)

The Break Event Point (BEP) calculation can be formulated as follows:

$$\text{Break Event Point (BEP) Sales} = \frac{FC}{1-\frac{VC}{s}}$$

Description:
FC = Total Fixed Costs
VC = Total Variable Costs
S = Revenue

Investment Costs

Investment is an activity carried out by business actors to invest capital or funds with the aim of obtaining future profits. In the smoked tilapia processing business, investment capital is needed to support operations, such as the construction of smoking houses, procurement of coolboxes, scales, and various production equipment needed in the processing process. The amount of business capital spent depends on the decision of each business actor in allocating their investment funds.

Payback Period (PP)

Systematically, the Payback Period (PP) formula can be written as follows:

$$PP = \frac{I}{\pi} \times 1 \text{ tahun}$$

Description:

PP = Payback Period

I = Investment Cost

π = Profit

The selection criteria of the PP method are:

- If the Payback Period is smaller than the target return on investment, then the investment project is feasible.
- If the Payback Period is greater than the target return on investment, then the project is not feasible.

RESULTS

Table 1. Investment Cost of Smoked Tilapia Processing Business

No	Description	Investment Cost (Rp)
1	Rumah Pengasapan	15.000.000
2	Kendaraan Bermotor	32.500.000
3	Sewa Tempat Usaha	6.000.000
4	Bak Pencucian	52.500
5	Pisau	36.000
6	Tusuk Bambu	50.000
7	Para-Para	100.000
8	Besi Pengasapan	100.000
9	Timbangan	148.500
10	Instalasi Listrik	500.000
11	Pompa Air	442.500
12	Cool Box	320.000
13	Kursi	50.500
14	Keranjang	47.750
Total / Year		55.347.750

Table 2. Table of Fixed Costs in Smoked Tilapia Processing

No	Description	Price(Rp)	Economical Life (Years)	Discounting (Rp)	Maintenance(Rp)	Total Financial Cost (Rp)
1	Rumah Pengasapan	15.000.000	30	500.000	1.200.000	1.700.000
2	Kendaraan Bermotor	32.500.000	5	6.500.000	1.000.000	7.500.000
3	Sewa Tempat Usaha	6.000.000	5	1.200.000	500.000	1.700.000
4	Bak Pencucian	52.500	1	52.500		52.500
5	Pisau	36.000	1	36.000		36.000
6	Tusuk Bambu	50.000	1	50.000	50.000	100.000
7	Para-Para	100.000	1	100.000		100.000
8	Besi Pengasapan	100.000	1	100.000		100.000
9	Timbangan	148.500	3	49.500		49.500
10	Instalasi Listrik	500.000	5	100.000	2.400.000	2.500.000
11	Pompa Air	442.500	3	147.500		147.500
12	Cool Box	320.000	3	106.667		106.667
13	Kursi	50.500	1	50.500	50.000	100.500
14	Keranjang	47.750	1	47.750	50.000	97.750
TOTAL/ TAHUN		55.347.750				14.290.417

Table 3. Table of Variable Costs in Smoked Tilapia Processing

No	Description	Cost Per Production (Rp	Cost Per Month (Rp)	Cost Per Year (Rp)
1	Biaya Bahan Baku	2.663.000	79.890.000	971.995.000
2	Bahan Bakar	110.000	3.300.000	40.150.000
3	Tenaga Kerja	165.000	4.950.000	60.225.000
4	Kemasan	22.000	660.000	8.030.000
5	Transportasi	29.500	885.000	10.767.500
Total Production Cost		**2.989.500**	**89.685.000**	**1.091.167.500**

Table 4. Smoked Tilapia Processing Revenue

NO	DESCRIPTION	Total
1	Harga (Rp)	55.000
2	Produksi (Kg)	73,35
3	Produksi Perbulan (Kg)	2.201
4	Produksi Pertahun(Kg)	26.773
5	Penerimaan Per Produksi(Rp)	4.034.250
6	Penerimaan Per Bulan (Rp)	121.027.500
7	Penerimaan Per Tahun (Rp)	1.472.501.250

DISCUSSION

Processing of Smoked Tilapia

Smoked tilapia processing is a series of processes that aim to transform fresh tilapia into processed products with distinctive flavors using the smoking method. Smoking is a traditional method that utilizes smoke from burning wood or other natural materials to create a unique aroma and flavor while extending the shelf life of the product.

Raw Materials for Smoked Tilapia Fish Processing

Tilapia fish as the main raw material processed by the smoking process requires fresh and fresh conditions because it will affect the taste of the smoked tilapia fish product. Tilapia contains high protein and low fat. One of the efforts to process fish and maintain fish quality is the smoking process(Dharma et al., 2022).

Production Process Facilities and Marketing Facilities for Smoked Tilapia Fish

In processing smoked tilapia, production process facilities are needed to carry out smoked tilapia processing production, among others: Smoking houses, production tables, baskets, bamboo skewers, para-para, grill irons, scales, charcoal shells, water tanks and coolboxes. Marketing facilities, namely motorized vehicles and rental of business premises in traditional markets and local marketing to generate income and profits. Adequate facilities and infrastructure will support the sustainability of the smoked tilapia processing process, The level of risk of damage to fish raw materials is very high, so the speed of handling greatly affects the quality of the products produced.

1. ***Smoked Tilapia Processing Production Process***

The production of smoked tilapia in Penatarsewu Village, Tanggulangin Subdistrict, goes through a process with the following steps:

- Procurement of raw materials
- Cleaning and preparation
- Fish arranging
- Smoked tilapia smoking process
- Cooling
- Packaging
- Distribution

2. ***Business Feasibility Analysis***

The business feasibility analysis of smoked tilapia processing aims to evaluate the potential sustainability and profitability of the business based on technical, financial, market, and environmental aspects.

3. ***Production Costs***

In the production process, the production cost of smoked tilapia processing is the cost needed in the production process. Calculation of production costs in the processing of tilapia raw materials processed by the smoking process into smoked tilapia. Production costs are divided into two categories, namely:

- ***Fixed Costs***

Fixed cost components are costs that do not change regardless of the volume of production or business activities carried out. The fixed cost component is the cost of making smokehouses, electricity and operational equipment that is fixed. Total expenditure on fixed costs in the form of equipment depreciation costs per year(Kamisi et al., 2017). Fixed costs in the smoked tilapia processing business in Penatarsewu village, Tangulangin sub-district in one year of production amounted to Rp. 14,290,417.

- ***Variable Costs***

Variable costs are costs that can change directly depending on the level of production and output produced. The cost of fish raw materials from tilapia is between IDR 21,000-Rp.22,000. While the raw materials produced are on average 122 Kg per day. The cost of fuel shells has spent 3 sacks at a price of Rp. 110,000, Labor costs of Rp. 165,000. packaging costs, namely plastic bags and transportation costs are components of variable costs and can change at any time influenced by internal and external factors and if there is an increase in raw materials that fluctuate in price. Variable costs of smoked tilapia processing production amounted to Rp. 1,091,167,500.

4. Revenue

Revenue is the total production yield obtained from the total amount of production and product prices within a certain time. The revenue obtained from the smoked tilapia processing business in 1 year amounted to Rp. 1,472,501,250, - the product price was Rp. 55,000/Kg. In one production, the average of 20 respondents produced smoked processed fish of 73.35 Kg, which in production per year can produce 26,773 Kg.

The production process is an activity that converts inputs into outputs in the form of products that are ready to be marketed. The sale of this product will generate a flow of income or revenue for the company, which can then be used to finance the implementation of further production(Jayanti & Hartanti, 2019).

5. Profit

The profit value of smoked tilapia processing is Rp. 367,043,333 per year. The condition of the smoked tilapia processing business is very promising and feasible to run in the short and long term. The business is able to return business expenses or all costs incurred within each year.

Taking into account fluctuating natural conditions, smoked fish processing businesses must conduct in-depth analysis to ensure their business remains profitable and can survive in the long term(Ohorella et al., 2022).

6. Break Event Point (BEP)

Keutaamaa from Break Event Point (BEP) Sales can help find out the minimum sales target, useful for planning pricing strategies and cost control and can find out investment decision making or business development. In smoked tilapia processing, the Break Event Point (BEP) sales value is obtained at Rp. 54,963,142. Sales of smoked tilapia production in Penatarsewu Village, Tanggulangin District in 1 year amounted to Rp. 1,472,501,250 per year. The smoked tilapia processing business is above the Break Event Point (BEP) point so that the business is very feasible to run.

Break-even point analysis (BEP) is a tool used by companies to find out how many products must be sold in order not to lose money. In other words, this is the point at which the company's revenue exactly equals the costs incurred so it is very useful for management to determine realistic sales targets and identify products which contribute to profits(Jayanti & Hartanti, 2019)

7. Investment Cost (I)

Investment costs are capital or fund investment activities in the hope of generating profits or returns in the future. Smoked tilapia processing in the investment capital used to run the business amounted to Rp. 55,347,750. components of investment costs such as basket smoking houses, coolboxes and other operational equipment. The total investment costs incurred in the smoked fish processing business by UMKM are used for land and building rental costs, making fish smoking places and purchasing production support equipment (Ohorella et al., 2022).

8. Payback Period (PP)

The payback period for the smoked tilapia processing business in Penatarsewu Village, Tanggulangin District, Sidoarjo Regency is 1.81. This means that the investment invested will return within a period of 1 year and 8 months.

One of the benefits in calculating the Payback Period is that the company can find out how long it takes to get back the capital that has been used. Payback period is the period needed to recover the value of the investment that has been issued using proceeds or net cash flows(Rusmayanti et al., 2022).

9. SWOT Analysis of Smoked Tilapia Fish Processing Business Development

SWOT analysis is the process of systematically identifying several factors to formulate strategies in the company, so that it can be useful in considering business development plans and plans(Yuniar, 2023) .Research in business development strategies uses SWOT analysis.

10. Internal Factors

Internal factors include strength factors and weakness factors in business development strategies. The following are the internal factors of smoked tilapia processing SMEs.

A. Strengths

1. Raw materials are widely available in Tanggulangin District
2. Strategic location known as the center of smoked fish production
3. Has many regular customers
4. Business actors and labor are skilled and experienced
5. Competitive and affordable prices
6. Have adequate processing facilities and infrastructure

B. Weakness

1. Production locations and products are still traditional and unhygienic
2. Product packaging is still simple and traditional
3. Short product economic life
4. Marketing coverage is still local and traditional market

11. External Factors

There are two elements of external factors, namely opportunity factors and threat factors in determining the smoked tilapia business development strategy. The following are external factors of smoked tilapia production.

A. Opportunity

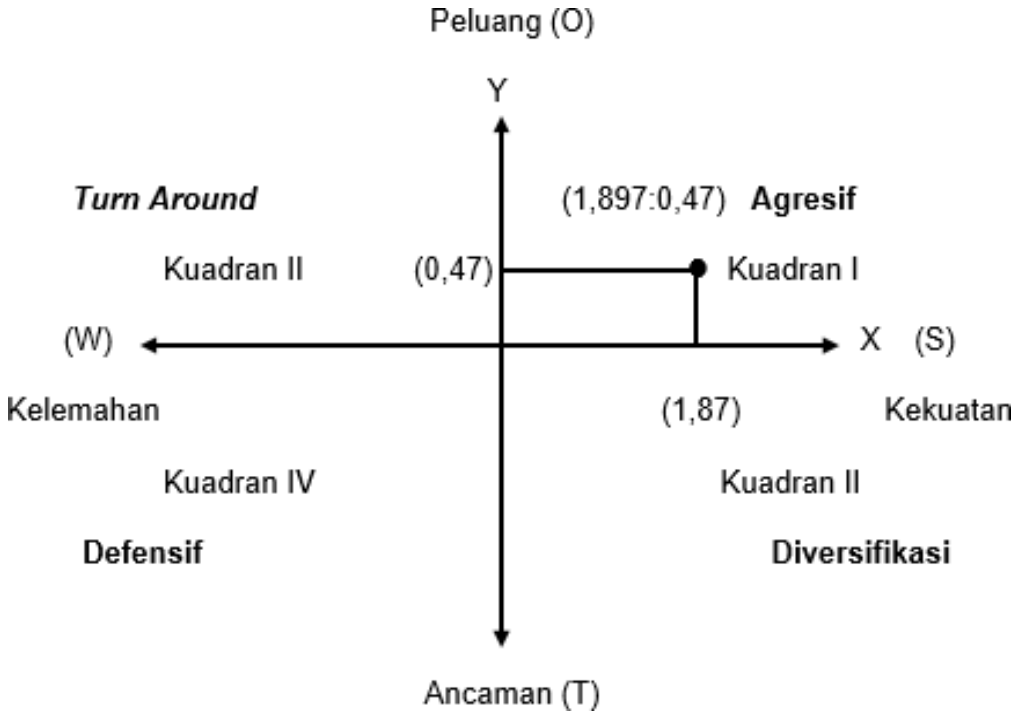
1. Purchasing power and public interest in smoked tilapia is high
2. Local government support and guidance from fisheries extension workers
3. Production installation repair assistance program
4. Smoked tilapia village has the potential to become a culinary tourism destination

B. Threats

1. Instability in raw material costs
2. Local government support and guidance from fisheries extension workers
3. Market competition with new diversified products
4. Tightening of regulations on quality assurance and product safety

12. SWOT Diagram Analysis

Both coordinates produce positive values, with the X axis worth 2.22 and the Y axis worth 2.28. With SWOT for smoked tilapia processing businesses in Penatarsewu Village, Tanggulangin District can be described based on the results of this calculation. Can be seen in Figure.



Picture 2. SWOT Diagram

Based on the SWOT analysis, internal strengths (2.66) outweigh weaknesses (0.44), resulting in a positive X-axis value of 2.22. Similarly, external opportunities (2.68) outweigh threats (0.40), resulting in a positive Y-axis value of 2.28. This places the business in Quadrant I, which indicates a favorable position with significant strengths and opportunities. To capitalize on this favorable position, the business should adopt a SO (Strengths-Opportunities) strategy, which is aligned with an aggressive growth orientation.

CONCLUSIONS AND RECOMMENDATIONS

The results of the discussion of smoked tilapia processing in Penatarsewu Village, Tanggulangin Subdistrict on smoked tilapia business development strategies include:

1. The feasibility study of smoked tilapia processing is very feasible to run. While achieving a payback period of 1.8 years, so that this business in the long term is feasible.
2. The smoked tilapia processing business development strategy in the SWOT analysis reflects an aggressive strategy with the dominance of strengths and opportunities in the development of this business. The strategy used is the Strength Oppurtunity (SO) Strategy by making several improvements, especially in terms of hygiene of the processing process and several broader marketing strategies and longer product economic life by considering packaging and storage of smoked tilapia processed products.

FURTHER STUDY

Furthermore, recommendations for researchers about the development of this business are:

For further research by examining the development of product diversification such as Dimsum, Fish Crackers and derivative products.

1. Development of processing technology on packaging innovation to extend shelf life.
2. Smoked tilapia processors need to pay attention to the hygiene of the production process and the post-production process of fish.
3. Smoked tilapia processors also need to pay attention to post-production packaging and storage.
4. The business development strategy has great potential in the future to expand to the modern market.

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REFERENCES

Andjar, S., Julianus Hutabarat, Dayal Gustopo, Dwi Ana Anggorowati, Muhammad Fatkhurozi, Yoga Putra Alviansyah, Nur Efendi, & Widhiyanto. (2021). Penerapan Mesin Pengasapan Ikan Pada Sentra Usaha Ikan Asap Kabupaten Sidoarjo. *JASTEN (Jurnal Aplikasi Sains Teknologi Nasional)*, *2*(1), 1–6. https://doi.org/10.36040/jasten.v2i1.3438

Dharma, M. aprianus yupan, Diah, K. pande ketut, & Wijaya, I. M. A. S. (2022). *Penentuan Umur Simpan Ikan Nila (Oreochromis niloticus) Asap pada Konsentrasi Asap Cair Bambu Tabah dan Suhu Pengovenan yang Berbeda*. *10*(April), 219–226.

Jayanti, E., & Hartanti, D. (2019). Pengaruh Penetapan Total Cost (TC), Total Revenue (TR), Dan Break Even Point (BEP) Terhadap Laba Pada PT. Indocement Tunggal Prakarsa Tbk. *Jurnal Ekonomi*, *9*(1), 1–12.

Kamisi, H. La, Lekahena, V. N. J., & Hiariey, S. L. (2017). Analisis kelayakan usaha pengolahan ikan asap di Kelurahan Faudu, Kecamatan Pulau Hiri, Kota Ternate. *Agrikan: Jurnal Agribisnis Perikanan*, *10*(1), 34. https://doi.org/10.29239/j.agrikan.10.1.34-37

Madiyana, E. (2019). *Strategi Pengembangan Usaha Budidaya Ikan Nila (Oreochromis sp.) Pada "UD Barokah" Di Desa Kemantren, Kecamatan Jabung, Kabupaten Malang* [Universitas Brawijaya Maalang]. https://doi.org/10.1088/1751-8113/44/8/085201

Ohorella, R., Sulaeman, Y., Hardianto, T., Soghirun, M., & Wulandari, N. (2022). Analisa Keuntungan dan Kelayakan Usaha Pengolahan Ikan Asap di Kabupaten Bone Sulawesi Selatan Penelitian ini berlokasi di Kecamatan Tanete Riattang Timur Kabupaten Bone Sulawesi. *Journal on Education*, *04*(04), 1724–1730.

Rusmayanti, S., Rastryana, U., Lestari, T., & Damhudi, D. (2022). Penilaian Investasi (R/C, BEP, ROI dan PP) pada Usaha Pembesaran Udang Maju Bersama, Serang Banten. *Jurnal Administrasi Bisnis*, *2*(2), 1–8. https://jurnal.bsi.ac.id/index.php/jab/article/view/1416

Triyono. (2018). Teknik Sampling Dalam Penelitian Sosial. *Lokakarya Penelitian Sosial Fakultas Adab IAIN Suka Yogyakarta*, *XI*(March), 2–9. https://doi.org/10.13140/RG.2.2.19674.24003

Yuliyarabihati, Y., Mahreda, E. S., & Febrianty, I. (2016). Analisis Pemasaran Dan Distribusi Ikan Nila Segar (Oreochromis niloticus) Di Pasar Bauntung Banjarbaru Provinsi Kalimantan Selatan. *EnviroScienteae*, *12*(2), 137. https://doi.org/10.20527/es.v12i2.1692

Yuniar, I. R. (2023). Analisis Swot Dalam Pengembangan Ekowisata Mangrove Mangrove Wonorejo , Surabaya. *Jurnal Ekonimi & Bisnis*, *January*, 0–14.