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ANALYSIS OF ADDED VALUE AND FEASIBILITY OF SEAWEEDS DODOL PRODUCTS IN UMKM MOFFIN SUMENEP

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ABSTRACT

UMKM MOFFIN was established in 2017 and strives to continue to develop in producing seaweed-based products. UMKM MOFFIN is located in Pagar Batu Village, Saronggi District, Sumenep Regency. Added value is the added value that occurs because a commodity undergoes processing, transportation and storage in one production process with the use/provision of functional inputs. While the feasibility analysis includes the calculation of NPV, IRR, Net B/C, and PBP with a comparison between the income obtained and the total costs incurred by the company. This study is to determine the added value of seaweed dodol production in Moffin UMKM and to determine the feasibility of seaweed dodol products in Moffin UMKM using NPV, IRR, Net B / C and PP calculations. The analysis of added value obtained from processing 10 kg of seaweed dodol is 63.30 % of production results. The profit margin obtained from every 5 kg of seaweed is distributed for each factor, namely profit 65.15%, labor 3.87 % and other input contributions of 30.98 %. The feasibility value analysis has Eligible criteria from NPV (net present value) , IRR (Internal rate of return) , Net B / C (Net benefit cost ratio) and PP (Payback Period). This UMKM has positive added value so it must maintain, increase business activities and expand its marketing. As well as separating income and expenses, preparing profit and loss reports properly.

Keywords : Dodol, Feasibility, Added Value

Introduction

UMKM MOFFIN was established in 2017 and strives to continue to develop in producing seaweed-based products. UMKM MOFFIN is located in Pagar Batu Village, Saronggi District, Sumenep Regency. Mrs. Nurul Laili is the owner of UMKM MOFFIN. The reason for establishing UMKM MOFFIN is to develop seaweed as a processed snack so that in Pagar Batu Village it does not only cultivate it. The UMKM produces several products, namely kembang goyang, crab sticks, seaweed crackers and pudding.

According to Rizkaprilisa (2023). Seaweed processing innovation is one of the efforts to increase the added value and competitiveness of seaweed commodities. In addition, this processing innovation can meet consumer demand and needs for a variety of alternative seaweed products. The following products have the potential to be food innovations from the use of seaweed, namely innovation in making dodol, namely by adding seaweed to increase the added value of seaweed. Seaweed dodol has a chewy texture.

Seaweed is a type of marine plant that has the potential to be cultivated and is very potential in various fields, especially in the fields of functional food and medicine (Tania et al., 2023). One of the areas in East Java that has the largest seaweed cultivation and production is located in Sumenep Regency. The type of seaweed cultivated in Sumenep Regency is Eucheuma cottonii. According to (BPS, 2021) it is stated that the largest seaweed cultivation in Sumenep Regency is located in Saronggi District. This can be seen in table 1.1 below.

Table 1 1BPS Number of Seaweed Cultivation in Saronggi District from 2017 to 2021

Saronggi District		
No	**Year**	**Unit (Ton)**
1.	2017	66,278.94
2.	2018	146,319.50
3.	2019	140,358.01
4.	2020	146,789.50
5.	2021	147,736.50

(Source: Primary Data, BPS 2022)

Table 1.1 shows the number of cultivation in Sarongi District as many as 147,736.50 in 2021. The abundance of raw materials, the ability to accept and implement innovation in producing various seaweed-based agro-industrial products can improve the economy of the surrounding community. The most widely produced seaweed in Sumenep is Eucheuma cottonii . Eucheuma cottonii seaweed Currently in Pagar Batu Village, Saronggi District, it is used as raw material for dried seaweed products and candy. Seaweed is also an additional ingredient for kembang goyang products, seaweed crackers, crab sticks, and pudding.

Analysis of added value in seaweed dodol products is important to do. Seaweed dodol production business is an agricultural product processing business that can provide added value and provide income to small businesses and is able to absorb human resources around seaweed dodol producers. Agricultural product processing industry activities can create added value. The concept of added value is a development of value that occurs due to functional input such as treatment that causes increased utility and value of commodities while following the flow of agricultural commodities. This agro-industry requires large capital, investment and production costs. Therefore, it is necessary to measure the performance of the agro-industry (Nugrahadista , 2018).

The feasibility of agro-industry can be seen in the calculation of NPV, IRR, Net B/C, and PBP by comparing the income obtained with the total costs incurred by the company. The measure often used to assess the success or failure of a company's management is from the profit obtained by the company. While profit is mainly influenced by three factors, namely the selling price of the product, costs, and sales volume. Costs are to determine the selling price that affects sales volume, while direct sales affect production volume and production volume that can affect costs. If the business being run is feasible, then the business has a profit and can carry out development strategies for its business.

The very dynamic environmental conditions and increasingly tight competition intensity make it not enough

for an entrepreneur to rely only on experience. Every entrepreneur establishes a business or project to gain the desired profit. Currently, with tight competition, not only large companies including micro, small and medium enterprises (MSMEs) compete to gain profit. Micro, Small and Medium Enterprises (MSMEs) in Indonesia are stated in Law Number 20 of 2008 concerning Micro, Small and Medium Enterprises (Arianton et al., 2019).

MSMEs in Indonesia are increasing every year towards MSMEs owned by the Indonesian people. Based on information from the Central Statistics Agency, there are around 65 million MSMEs in Indonesia (BPS, 2022). However, the role of MSMEs still needs attention. This is because MSMEs have characteristics, namely the lack of ability to develop financing and empower MSMEs, therefore there are many problems in the development of MSMEs (Maulida et al., 2022).

Based on the description above, it is important to conduct an analysis of the added value and feasibility of the Moffin MSME which is engaged in the processing of seaweed into seaweed dodol. This is because the abundance of raw materials in Saronggi District and also in the Moffin MSME there has been no innovation in processed seaweed dodol products. Based on this background, this study is able to apply the innovation of seaweed dodol in the Moffin MSME by maintaining the original taste of the seaweed itself and also changing the shape of the dodol so that it is liked by both adults and children. The method used to determine the added value of the innovation of seaweed dodol products uses the Hayami method to determine the capital and profits obtained. Meanwhile, in conducting a business feasibility analysis, it is carried out to determine whether or not the seaweed dodol product that will be run at the Moffin MSME is feasible.

Formulation of the problem

Based on the background description, the formulation of the problem in this study is how much is the added value of seaweed dodol processing at Moffin UMKM and whether the seaweed dodol production business at Moffin UMKM is financially feasible.

Research purposes

The aim of this research is to find out the added value of Seaweed Dodol production. in MSME Moffin and to determine the feasibility of the MSME Moffin Seaweed Dodol Product using NPV, IRR, Net B/C and PP calculations.

Benefits of research

The benefits obtained from this research are:

1. Have knowledge about the feasibility analysis of Seaweed Dodol MSMEs.
2. Providing motivation for entrepreneurs who want to develop their business.
3. Providing motivation to the community to develop seaweed to become seaweed dodol which has added value and generates income.

Time and Place Study

This research was conducted for approximately 1 year starting from September 2023 - the end of October 2024. This research will be conducted with the object of research being seaweed dodol at the Moffin UMKM in Pagar Batu Village, Saronggi District, Sumenep Regency.

The stages of this research start from literature study with writing research results to conclusions and suggestions. In detail, the stages of this research can be seen in Figure 3.1 below.

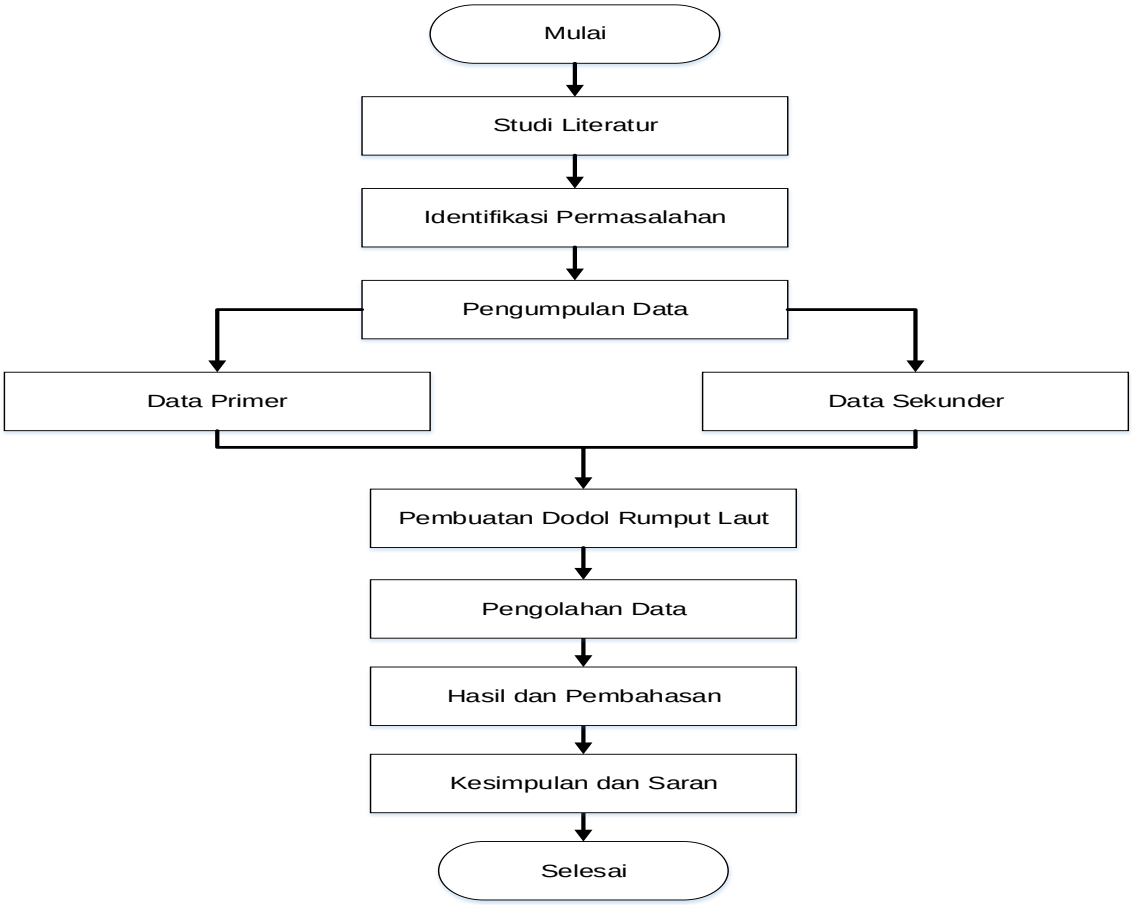

Figure 1 Research Stages

The data collection stage is carried out in the following way:

1. Primary Data

The primary data of this study are the price of seaweed raw materials, packaging, electricity, machinery and labor wages. These data were obtained through interviews, observations and questionnaires at the Moffin seaweed UMKM in Pagar Batu Village, Saronggi Regency, Sumenep Regency.

a) **Observation Method**

A technique or approach to collecting data by means of ongoing activities is called observation. In Pagar Batu Village, Saronggi Regency, Sumenep Regency, direct research on the process of making seaweed products is allowed for observation.

b) **Interview Method**

Interview is a technique used to obtain information from sources through question and answer sessions. The interview process is one of the systematic interviews. Distributing questionnaires to UMKM actors producing seaweed products to find out the volume of input and output used in the production process.

c) **Documentation Methods**

Material in the form of documentation includes a lot of information and data. Most of the information is present in letters, diaries, reports, pictures and videos. The main nature of this data is beyond place and time, giving researchers the opportunity to learn more about what happened.

2. Secondary Data

Secondary data, or numerical information derived from previously collected information, such as

research-related publications, magazines, or literature. Secondary data in this study were obtained from several sources including the central bureau of statistics, journals, and previous research, books and so on above are needed as a basis for determining how to collect data in research.

3. Data processing

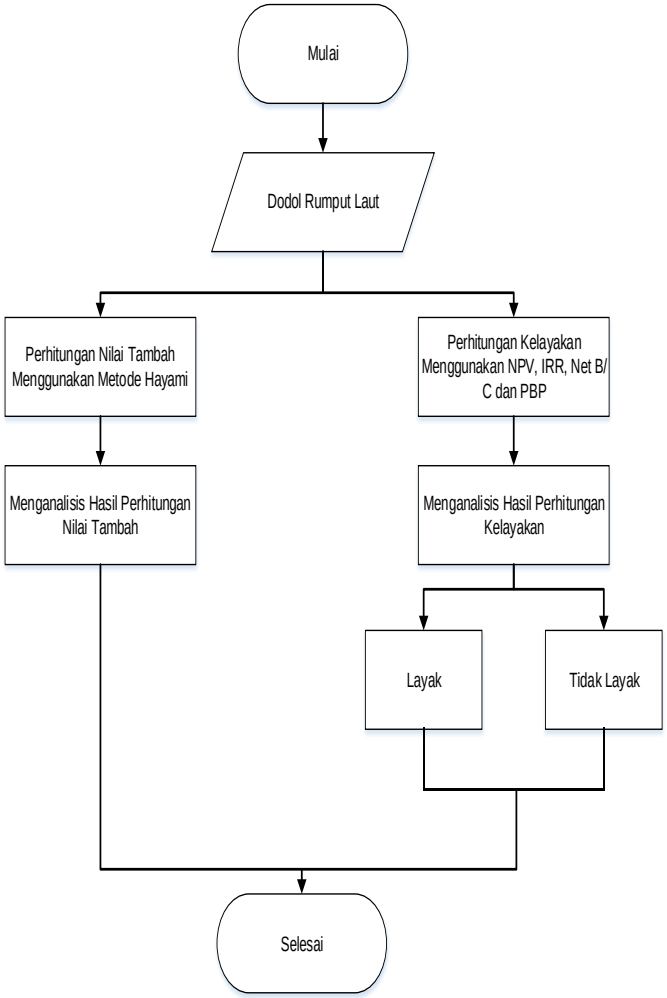

Figure 3.2 Stages of Calculating Added Value and Feasibility

According to (Wulansari , 2019). Fixed costs are costs incurred periodically and the amount is always constant or fixed, not affected by the size of the business volume or business processes that occur during that period. Fixed costs can also be referred to as operational costs. Fixed costs are also interpreted as the minimum costs that must be incurred by a company in order to carry out the production process, either in the form of goods or services. This cost is clearly not influenced by the number of products or services that can be produced. Fixed costs are a type of cost that is static (unchanging) in a certain size. This cost will still be incurred even if you do not do any activity or even when doing a lot of activities. Fixed costs at the Moffin UMKM are costs used in the seaweed dodol processing business, the amount of which is not affected by the amount of seaweed dodol production produced. Fixed costs in the seaweed dodol processing business include equipment depreciation costs, depreciation costs are one of the consequences or use of fixed costs, where fixed costs will experience a decrease in function.

Results and Discussion

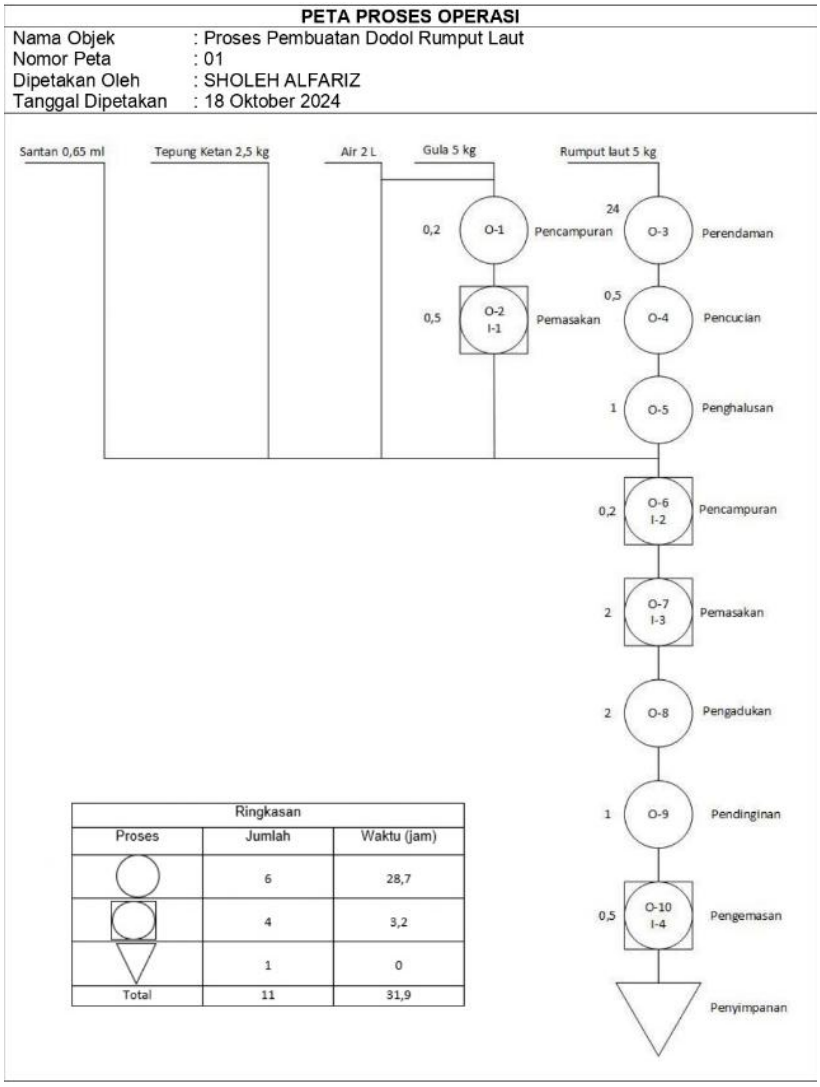

Figure 4.1 Map of the Operational Process for Making Seaweed Dodol

Process Chart is a map that describes the steps of operations and inspections experienced by materials in their sequence from the beginning to becoming a complete finished product or as a semi-finished part. Based on **Figure 4.1,** it can be said that the manufacture of seaweed dodol on the operation process map consists of two processes, namely the manufacture of 5 kg of sugar liquid and the manufacture of seaweed dodol. The manufacture of sugar liquid is by mixing sugar and water for 0.2 hours and continued with heating for 0.5 hours. Next, the manufacture of seaweed dodol is seaweed soaked for 24 hours, then the seaweed is washed for 0.5 hours, then the seaweed is smoothed for 1 hour, then the ingredients are mixed between 2.5 kg of glutinous rice flour, 0.65 ml of coconut milk, 2 liters of water, 5 kg of seaweed porridge and 1 kg of sugar liquid for 0.2 hours, then stirred and cooled for 1 hour after that the seaweed dodol is packaged and stored. The operational processes carried out were 9 and the inspection process was 1 and storage was 1. The time required for the process of making seaweed dodol was 29.9 hours.

Value Added Analysis

The added value of MSME moffin can be seen based on the calculation results using the Hayami method as in Table 4.1. This table explains in sequence starting from the explanation related to the input requirements for the seaweed dodol production process along with its prices, the output of seaweed dodol along with its prices, and how added value can be obtained.

Table 4 1 Value of Moffin MSMEs

No	Variables	Notation
Output, Input and Price		
1	Output (Kg/Production)	10
2	Raw materials (Kg/Production)	5
3	Labor (HOK/Production)	1
4	Conversion factor	2
5	Labor coefficient (HOK/kg)	0.2
6	Output price	Rp. 84,470
7	Average wages of labor	Rp. 30,000
Income and Value Added		
8	Raw material price (Rp/kg)	Rp. 14,000
9	Other input contributions (Rp/kg)	Rp. 48,000
10	Output value (Rp/kg)	Rp. 168,940
11	Added value (Rp/kg)	Rp. 106,940
12	Value added ratio (%)	63.30%
13	Labor remuneration (Rp/kg)	Rp. 6,000
14	Labor share (%)	5.61%
15	Profit (Rp/kg)	Rp. 100,940
16	Profit share (%)	94.39%
Remuneration for production factors		
17	Profit margin (Rp/kg)	Rp. 154,940
18	Profit (%)	65.15%
19	Labor Force (%)	3.87%
20	Other inputs (%)	30.98%

Based on **Table 4.1,** the results of the calculation of added value using the Hayami method above, in one production process of seaweed dodol processing, it can process 5 kg of seaweed input material which produces 10 kg of seaweed dodol output. In each seaweed dodol production process, it is carried out by 3 workers with a daily wage of HOK Rp. 30,000.

The conversion factor is the division between output and input. The result of the calculation of the conversion factor for processed seaweed dodol products is 2. This conversion value means that every kilogram of processed seaweed produces 2 kilograms of seaweed dodol. The labor coefficient is obtained from the ratio between the number of working days and the raw materials processed. The calculation results obtained a labor coefficient of 0.2, which means that the workforce in 1 working day is able to process 2 kg of raw materials.

Then for the output price from the seaweed dodol processing results of Rp. 84,470 per kg. The input price or seaweed raw materials used in the processing of seaweed dodol are based on the average price range of seaweed in Pagar Batu Village, which is Rp. 14,000 per kg. For one kilogram of seaweed raw materials, it produces another input contribution of Rp. 48,000 . The output value is the result of multiplying the output price by the conversion factor. The output value produced from the processing of seaweed dodol is Rp.

168,000 . This means that for every 1 kg of seaweed raw materials processed, it will produce an output value of Rp. 168,000.

The distribution of added value to remuneration or direct labor income is obtained from the multiplication of the labor coefficient with the average wage of the labor. Labor remuneration shows the average amount of income received by the labor for each seaweed dodol processing activity, which is Rp. 6,000 per kg of raw material. So, for every 1 kg of seaweed dodol, the labor generates an income of Rp. 6,000.

Profit is the difference between added value and direct labor income. The profit obtained from the seaweed dodol processing process is Rp. 100,940 per kg. This profit has a profit rate of 94.39 % of the processing results. This means that from one kilogram of seaweed raw material processing, the profit is 94.39 % .

Added value is the reduction between the output value and the price of raw materials and other input contributions. Based on the processing of one kilogram of seaweed and other input contribution elements, it produces an added value of Rp. 106,940 per kg of raw material. The value added ratio is the comparison between the added value and the output value multiplied by 100%. The value added ratio of the seaweed dodol processing process is 63.30 %. The amount of added value obtained from the calculation is in line with the ratio of added value to output value.

After calculating the value, testing is carried out according to the following added value assessment criteria:

1. The value added ratio is low if it has a percentage < 15 percent
2. The added value ratio is moderate if it has a percentage of 15 – 40 percent
3. High value added ratio if it has a percentage > 40 percent

Thus, based on the above criteria, it can be categorized that the added value of the seaweed dodol processed agro-industry is relatively high, where the percentage produced is 63.30 %. Furthermore, the added value obtained is a reward for each production factor used. Therefore, to find out the amount of reward given from the added value obtained, the margin between the value of the product produced and the main raw materials used must first be known. The amount of margin obtained from the calculation of the added value analysis in the agro-industrial processing business is distributed for other input contributions of 30.98 % which is the largest part when compared to labor income and producer profits. This shows that seaweed dodol processing production activities require other inputs (supporting materials) which are relatively more than the need for raw materials (seaweed). Furthermore, the smallest margin distribution is labor income (3.87 %) which is caused by the condition that the seaweed dodol processing business uses relatively little labor in the production process.

Feasibility Analysis

The feasibility analysis that is a measuring tool to determine comprehensively whether a project is feasible to be implemented is by using investment criteria. Investment criteria are an index to measure and compare the benefits of various projects so that it can be assessed whether a project is profitable or not. The following are the results of the feasibility calculation at UMKM Moffin.

Table 4.8 Results of Calculation of Business Feasibility Criteria

No	Analysis Tools	Analysis Results	Standard	Information
1	Net present value (NPV)	Rp. 33,092,675	0 >	Worthy
2	Net benefit cost ratio (Net B/C)	1.08	1 >	Worthy
3	Internal rate of return (IRR)	41.95%	1 >	Worthy
4	Payback period (PBP)	1 year 9 months 10 days	1 >	Worthy

Net Present Value (NPV)

The calculation results obtained the NPV value for UMKM Moffin Rp. 296,103,657.78 . This value is the net cash received for five years providing benefits, thus based on the NPV criteria> 0, it means that a business has been declared profitable and feasible to be implemented, the NPV value generated is more than the specified criteria, then UMKM Moffin Dodol Rumput Laut is feasible to be implemented .

Net benefit cost ratio (Net B/C)

The Net B/C value obtained was 1.08 The seaweed Moffin UMKM is in a condition that is suitable for development because it has a Net B/C value that exceeds the value that has been categorized, namely B/C Ratio > 0. This business is profitable or suitable for development because it has a Net B/C value that exceeds the value that has been categorized.

Internal rate of return (IRR)

The IRR result obtained is 41.95% which shows that it is greater than the current interest rate of 6%. The interest rate value obtained is included in the exterpolation because it exceeds the interpolation limit of 41%. The calculation result with a value of 41% can be concluded according to the feasibility requirements that this business is feasible to implement because the IRR is greater than the applicable interest rate. The IRR value is obtained by using the feasibility calculation obtained at 41.95% meaning IRR > Discount rate, then the business being run is profitable. While the discount rate used is 41%.

Payback Period (PBP)

The results obtained from the calculation of the Payback Period for the Moffin seaweed dodol UMKM, the payback period is 1 year 9 months 10 days , so it is said to be feasible because the return on investment is less than 5 years according to the predetermined criteria, namely PP <1. So the economic life of the business is feasible to run.

Conclusion

The results of the analysis concluded that The added value obtained from processing 10 kg of seaweed dodol is Rp 106,940/kg or 63.30 % of the production results. The profit margin obtained from every 5 kg of seaweed is Rp 154,940/kg, distributed for each factor, namely profit 65.15%, labor 3.87 % and other input contributions of 30.98 %.

result obtained was Rp. 33,092,675 so that the NPV value can cover the investment made within the desired time period, for a Net B/C value of 1.08 It is said to be feasible because the value is more than one, for the IRR value obtained it is 41 % It is said to be feasible because the value is greater than the predetermined DF, which is 41.95 %, and the PBP value is said to be feasible because it can return the investment capital shorter than the project life, which is 1 year 9 months 10 days .

Suggestion

UMKM Moffin in Pagar Batu Saronggi Village, Sumenep Regency has positive added value, so it is recommended to maintain, improve business activities and expand its marketing. UMKM Moffin should classify costs, revenues and income. With this classification, UMKM Moffin can prepare a profit and loss report properly so that there is detailed recording so that it will make it easier if later UMKM entrepreneurs want to increase their business activities and need capital loans to banks or other institutions.

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