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# Analysis and Business Development Strategy Agroindustry Herbal

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#### **ABSTRACT**

One of the herbs that are very potential to be developed in the village of Matanair, Rubaru District, Sumenep Regency is instant herbal medicine. Immediate herbal medicine is an effort to make it easier for consumers to enjoy herbal medicine. Formulation of the problem in this study How is the feasibility of an instant herbal agroindustry business in Sumenep Regency. As well as how to develop the next herbal medicine agro-business business in Sumenep Regency. The analysis used in this study to see the feasibility of the company used financial feasibility analysis. Market analysis is carried out by analyzing the development of demand (demand side) and supply side (instant side) for several years to come. Furthermore, to see the development prospects and strategies used a SWOT analysis. Based on the results of the study, the following conclusions were obtained: On the results of the calculation of the feasibility analysis that has been done is got the NPV value of Rp. 241.604,291.70, -; Pay Back Period with a period of 1.53 years; IRR value is 58.80%, and Net B / C is 2.35. Alternative strategies that can be applied to herbal medicine agroindustries based on business positions in quadrant I, namely SO STRATEGY, in the SO strategy four alternative strategies can be used, including market penetration, attention to production continuity, expanding product distribution, carrying out missions product introduction outside Madura.

Keywords: Instant Herbal Medicine, Feasibility, SWOT

# 1. INTRODUCTION

Madura Island development post-Suramadu bridge construction is believed to be a significant contribution regarding reviving the economy of East Java. Madura development can be started from the eastern region. Therefore, since the first purpose of the visit Madura travel in the east region. After the longest bridge was built, the east region is increasingly becoming a tourist destination Madura. Therefore Sumenep as most counties in the east end can be a reference for Madura tourism. Tourism potential that has been developed is natural tourism and religious tourism (Pratiwi, Ali, Setiawan, Budiyanto, & Sucahyo, 2017). Besides another tourism potential that can be produced is the concept of agrotourism.

Agro-tourism can be used as a solution to overcome these problems. The hope is that the agricultural sector can grow. Besides Sumenep renowned for its diverse types of herbs and herbal



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medicine is called herb Traditional Madura great public interest and different from other traditional herbal medicine.

Herb is a product of natural ingredients native to Indonesia, which is used for health maintenance, disease prevention, treatment of diseases, the restoration of health, fitness, and beauty. This natural ingredient is a legacy handed down by ancestors of Indonesia, which has the knowledge how to utilize natural materials for medical, healthcare and beauty. The ancestors of Indonesia have started treatment using herbs.

Sumenep, Madura community, in particular, have long practiced traditional herbal medicine or herbal medicine which is more commonly called. In general, herbal drink formulated from herbs has been the ability of families and communities Madura, especially those who still bleed blue (the descendants and relatives of the king). Drinking herbal medicine are so attached to it have led to a principle of "better not eat than not drinking herbal medicine."

Based on the shape, herbs Madura as herbal made in Java can be grouped into five kinds of herbs, namely: Fresh herbs. (2) Herbal boiling. (3) Herbal Infusion. And (4) Herbal Oles.

Based on earlier research Fatmawati (2014), Agro-industry of herbal medicine in Sumenep ranks second leading commodity in Sumenep after cassava chips. Agroindustrial herbs in Sumenep worthy to be pursued. Another study from Fatmawati (2011) states that the Sumenep potential to be developed agro herbal concoction acquired Madura and potential areas to be developed, the village Matanair Rubaru District of Sumenep model of community-based ecotourism development.

One of the herbs that very potential to be developed in the village Matanair Rubaru District of Sumenep is herbal instant. Instant herbal medicine is an attempt to facilitate for consumers to enjoy herbs. Instant herbal medicine business in Sumenep challenged to develop specific strategies to increase brand awareness of Indonesian society (Ali, 2014). All courses are conducted will not be successful without the support of the community and the Government. Based on the above need to be aware of regarding feasibility and prospects for the development of instant herbal medicine in Sumenep.

#### 2. METHODOLOGY

Determination area research is done intentionally (purposive sampling) (Nazir, 1989). This study was conducted in Sumenep consideration Sumenep regency is one of the central areas of the herbal medicine industry. The analytical methods used to address the feasibility of agro-herbal medicine by using financial feasibility analysis according to Soetriono herbal medicine business.



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The analytical methods used to determine the development strategy agroindustry herbs that states used models SWOT analysis is one method to describe the condition and evaluate a problem, project or business concept is based on internal factors (inside) and external factors (outside), namely Strengths, Weakness, Opportunities, and Threats. This method is most often used in business evaluation methods to find strategies that will be done. SWOT Analysis describes the situation that occurs not as a problem solver.

SWOT analysis is to identify the various factors systematically to formulate a strategy. This analysis is based on the logic that maximizes strength (strength) and opportunities (opportunities), but simultaneously to minimize the weakness (weakness) and threats (threats). This is called situational analysis. The most popular models for the analysis of the situation is the SWOT analysis.

The first stage in the preparation of the analysis is the data collection phase. At this stage, the data can be divided into two, namely the external data and internal data. The model used in this phase is scoring Internal environment analysis (ALI) and External Environment Analysis (ALE), environmental analysis and determination of the Internal Environment Linkage Analysis (ALI) and External Environment Analysis (ALE).

#### 3. RESULTS AND DISCUSSION

Herbal medicine can be categorized as a health drink. These products are made using the primary raw material of coffee combined with galangal. The physical form of the medicinal product is a powder and packaged in plastic form. This product is quite durable, and the composition of materials made of materials that are not harmful to health, and organoleptic taste can be accepted by society.

#### a. Analysis Business Financial Feasibility Herbal Agro-Industry

Feasibility analyzes regarding financial aspects, studying business management coffee galangal on finance in the agroindustrial coffee galangal consisting of outflow (outflow) in the form of fees and inflow (inflows) in the way of acceptance, which is then incorporated in cash flow or cash flow. The data collected is then analyzed into four investment criteria, ie, IRR, NPV, Net B / C and Pay Back Period is used to determine the feasibility of coffee agro-industry business development galangal.

#### 1. Cost herbs production

Cost of investments in agro-industry consists of the cost of provision of places of business, a variety of equipment used for produce herbs such as grinding, mixing, tools pres (continuous



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sealer and hand sealer), stove, pans, tubs, sieves, knives, scales, laptop and procurement letter of business licenses (SIUP, SITU, TIN, etc.).

The investment costs are the biggest agro-industrial plant building costs which amounted to Rp. 135,000,000, -. Operational costs in agro-herb consists of fixed costs and variable costs incurred during the year are calculated based on the number of working days for the production of agro-herbal.

Among some of these costs, the largest cost is a fixed cost overhead costs in the amount of Rp. 58365.750, - because these costs include various costs for labor costs outside of production such as labor administration and leadership, equipment and building maintenance costs, as well as electricity and telephone charges. Total costs are fixed in the agro-herb that is Rp. 87,652,285, -.

Details of the cost of equipment used in production can be seen in the table below.

Table 1. Fixed costs Herbal Agro-Industry

No.	Cost-type	Value (USD)
1	Factory Overhead Costs	58.36575 million
2	Administration and general fee	600,000
3	Cost of depreciation	11.125 million
4	interest Rate	17,561,535
Total Fixed Costs		87,652,285

The variable cost is a cost that can be changed at any period of the production, which is due to the fluctuation of the desired production. The variable cost consists of raw materials, supplies, and labor costs. On agroindustrial herbal variable costs is Rp. 127 084 800, -. Details of herbs such as agro-industry variable costs in the table below.

Table 2. Variable costs Herbal Agro-Industry

No.	Cost-type	Value (USD)		
1	Raw material	41.472 million		
2	Supporting materials	62.8128 million		
3	Promotion and Marketing	3,600,000		
4	Labor costs	19.2 million		
	Total Variable Cost	127 084 800		

While total operating costs are some fixed costs and variable costs included in the table.

Table 3. Herbal Agro-Industry Operating Costs

No.	Cost-type	Value (USD)	
1	Fixed cost	87,652,285	
2	variable costs	127 084 800	
Total Operating Costs		214 737 085	

2. Income



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Based on the large production rate of herbs that have been described previously, the capacity of agro-industrial production of herbal medicine during a year that produce large packaging herbs (250g) as many as 10 368 units at a price of 25.000 / unit, whereas small packs (20g) of 43,200 units at a price of Rp. 2.000 / unit. Thus, the total revenue generated agro-herbal medicine is Rp. 345 600 000, -. More fully projected output and income can be seen in the table below in the table below.

Table 4. Production and Revenue Projection Herbal Agro-Industry

No.	commentary	Unit	Production (units / month)	Production (units / year)	Price (USD/g)	Value (USD / year)
1	Types of products					
	Herbal (Large)	250g	864	10 368	25,000	259 200 000
	Herbs (Small)	20g	3,600	43200	2,000	86.4 million
2	Total Gross Revenue Year			53 568	27,000	345 600 000

#### 1. Financial Feasibility of Business Herbal Agro-Industry

The results of calculations on the feasibility of agro-herbal medicine, the result can be seen in the table that the business is viable and developed.

Table 5. Feasibility Analysis Herbal Agro-Industry

Eligibility parameters	Value		
IRR(%)	58.80%		
PBP (Effort) - year	1.53		
DF	12%		
NPV(USD)	241,604,291.70		
Net B / C ratio	2.35		

The calculation result of investment criteria with the discount factor of 12% per year the Net B / C ratio of 2.35 (greater than 1), while the rate Payback period is 1.53 (less than ten years of age business) and NPV Rp. 241,602,291.70, - (a positive value, greater than 0). Retrieved IRR 58.80% (greater than 12% discount factor). In other words, these agroindustrial herb enterprises still feasible until the interest rate (discount factor) of 58.80% every year.

#### 4. IRR (Internal Rate Of Return)

IRR is used to measure the rate of return on investment which is issued agroindustry herbs as measured by the prevailing interest rates at the moment is 12%. At 5:12 in the above table it is known that the value of IRR obtained at 58.80%, the amount shows the importance of IRR is greater than the interest rate applicable (58.80%> 12%) which means that the business viable agroherbal medicine. These values also indicate that the herbal medicine business will remain the agroindustry can be said to be eligible to run until the interest rate reaches 58.80%.

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In IRR 58.80% indicates that the amount of investment made for this effort will get the return on investment of 58.80%, this is an opportunity for investors to invest in this business because the profit level is high enough, but it can be strengthened even this effort in the capital.

#### 5. NPV (Present Net Value)

NPV at agroindustrial enterprises herbal medicine with an interest rate of 12%, the value of Rp. 241,604,291.70, -, the value indicates that the NPV is greater than zero or a positive value. This means that the net proceeds agro-herbal greater than the overall costs and it can be concluded that the beneficial herbs and agro-industry to develop.

#### 6. Net B / C Ratio

Net B / Con agroindustrial herbs obtained of 2.35. Tersebur value indicates that the value of the Net B / C is more than one (2.35>1), thus it can be concluded that the herbal medicine business profitable and viable agro-industry developed, in addition to the value of Net B / C could mean that each one cost will generate profit or benefit of 2.35.

# 7. PBP (Pay Back Period)

Pay Back Period the magnitude of the period required for the agroindustry this herb can restore the value of the investments made. In Table 6 are known PBP value that is equal to 1.53 which means that the agro-industry businesses can recover the investment within one year six months ten days were done by calculating the feasibility of the business project based on a period of 5 years. The period has shown that the business PBP coffee agro-industry effort galangal exceed the economic life of 10 years. Thus it can be said to be feasible.

#### 8. Development strategy

The factors mentioned previously will be grouped into two categories, namely internal strengths and weaknesses.

#### a. strength

The factors included in the category of the strength of the agro-industrial enterprise's herbs consists of 6 elements. That is Raw materials are easy to obtain, Value-added products, The selling price of affordable products, trained human resources, Utilization of the online system in a promotion, and Completeness of business licensing.

#### b. Weakness

Factor in the category of weaknesses in the coffee agro-industry effort galangal is as follows. That is Product quality is still less than the maximum, packaging not maximal, There is no partnership for the acquisition of Coffee, The application of the technology is still low, Simple business management, and Segmentation and market position have not been studied.



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#### c. Matrix Internal Factors

Matrix internal factors illustrate that these factors need to be examined to produce a strategy for a business. Internal elements consist of two factors, namely factor of strength and weakness. At this stage each of the factors included in both of them will be given a rating, the rating will show the importance of these factors in the company. The rating is then multiplied by the value of the weighting resulting in a score; a score is used to determine the position of agroindustry herbs. The following matrix table of internal factors in the agro-herb in the table below.

Table 6. Matrix Internal Factors Herbal Agro-Industry

Internal factors	Weight	rating	Score
Power			
1. Galangal easily available raw materials	0.103	4	0.412
2. Value-added products	0.081	3	0,243
3. The selling price of affordable products	0,072	3	0.216
4. trained human resources	0.073	2	0,146
5. Utilization of the online system in promotion	0.077	3	0.231
6. Completeness of business licensing	0.102	4	0.408
Total Factor Strength	0.508		1.656
Weakness			
1. Product quality is still less than the maximum	0.075	3	0,225
2. packaging not maximal	0,085	2	0.170
3. There is no partnership for the acquisition of Coffee	0.073	3	0.219
4. The application of the technology is still low	0,084	2	0.168
5. Simple business management	0.083	2	0.166
6. Segmentation and market position have not been studied	0.093	2	0.186
Total Factor Weakness	0.493		1,134
Total	1.00		2,790

In the table above is known that factors greatest strength are two factors that have a difference of score bit that factors feedstock easily obtained with a score of 0.412, the acquisition of raw materials is very important for businesses agro because the sustainability and continuity of production is determined by the availability of raw materials, While the second most significant factor is the factor of the completeness of business licenses with a score of 0.408, completeness agro-business licensing will support and protect the company's business purpose in the legal aspects.

Factors weakness in the agro-industry herbs consists of 6 factors. Factors biggest weakness is simple business management with a score of 0.166, simple business management can hinder the development of agro-herbs, so it tends to be stagnant agro-industry. The next factor low application of technology with a score of 0.168, applied techniques will affect production yields obtained.



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The total score was 2,790 internal factors indicate that the internal position of the coffee agro-industry effort galangal is above the average value of 2.50.

## d. Opportunity

The opportunities that are owned by the agro-industrial business herbs are patent protection, The imagery of herbs lifted, Increased consumption of herbs, Population growth, government Support, and Supporting environmental protection regulations.

#### e. Threat

Threats in an effort can lead to a deterioration of business if not addressed immediately. The factors threat in herbal medicine agroindustrial enterprises are Their competitors the same product, New product, Consumer sensitivity to prices, Consumer confidence remains low, The increase in electricity tariffs, petrol, and telephone, and International trade barriers.

#### f. Matrix External Factors

Matrix external factors can give an idea of the influence of environmental factors beyond the agro-industry business to business strategy formulation. External factors consisted of factors opportunities and threats. Here are the details of the matrix of external factors in the table below

Table 7. Matrix External factors Herbal Agro-Industry

External Factors	Weight	rating	Score		
chance					
1. patent protection	0.091	3	0.273		
2. The imagery of herbs lifted	0.095	3	0.285		
3. Increased consumption of herbs	0.093	3	0.279		
4. Population growth	0,084	3	0.252		
5. government Support	0.079	3	0.237		
6. Supporting environmental protection regulations	0.087	3	0.261		
Total Factor Opportunities	0.529		1,587		
Threat					
1. Their competitors the same product	0.079	3	0.237		
2. New product	0.083	2	0.166		
3. Consumer sensitivity to prices	0.081	3	0,243		
4. Low consumer confidence	0.074	3	0.222		
5. Tariff increases in fuel, telephone, and electricity	0.079	3	0.237		
6. International trade barriers	0.075	3	0,225		
Total Factor Threat	0.471		1.33		
Total	1.00		2,917		

According to the table above can be seen that the agro-industrial herbs have six chances to be utilized for business development. Factors opportunities that have the highest score is the factor raised the image of herbal medicine with a score of 0.285. The second highest factor that increased



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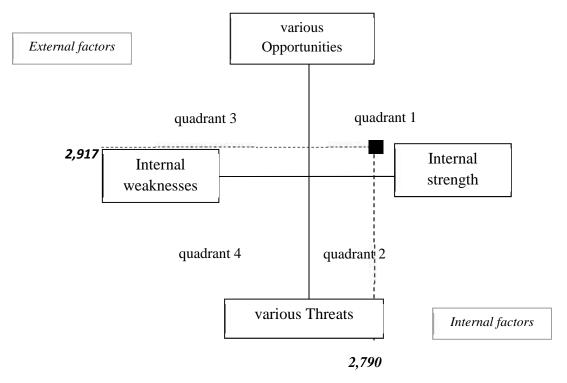


consumption of herbs with a score of 0.279 these factors affect demand for herbal medicine. A further consideration, namely, patent protection can prevent plagiarism businesses already in the licensing process with a score of 0.273.

In the above matrix also includes threats, there are six factors herbs threat of agro-industry. The biggest threat is a factor of their new product with a score of 0.166; another product will be a competitor for herbal medicine. While the second threat factor is the factor of consumer confidence is still low with a score of 0.222. Further elements of international trade barriers that require a high-quality product that has a score of 0.225, this factor becomes a threat because of the quality of coffee products laws are still not able to compete even with the products of the coffee industry in the country. The total score was 2,917 external factors.

# 3. Position Matrix SWOT Analysis

From the analysis of the matrix of internal factors and external factors can be combined into the SWOT matrix so that businesses can know the position of agro-industrial enterprises at this time. Total score of internal factors in the amount of 2,790 which is a merger between the score of the strengths and weaknesses score. While external factors obtained a score of 2,917 out of the combined group should score opportunities and threats. Securing rating is then inserted in the diagram SWOT matrix so that we will get an idea of agro-industry business position.



SWOT matrix image position Herbal Agro-Industry



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Based on the analysis of internal and external environment agroindustry herbs, as well as the formulation of strategic alternatives that have been made, the position of the business is in quadrant I, namely the use of force as well as the opportunities that have for sustainability and business development (aggressive strategy / Growth-oriented strategy). Based on this position can be seen, the focus of an appropriate strategy to be applied in this effort is SO strategy.

# 9. Strategy formulation

Based on the attached diagram SWOT matrix, it can be formulated by the development strategy of internal and external conditions agroindustry herbs as follows:

#### a. SO strategy

- 1. Namely market penetration strategy that identifies and develops growth market segments for products that already exist.
- 2. Pay attention to the sustainability of production.
- 3. Expand product distribution, during this effort, is only distributes its products to several places or stores, should be improving the marketing system. His job doing marketing functions to facilitate the flow of agricultural products from producers to consumers beginning of the end.
- 4. Mission by way of introduction to the product outside of Madura, after mastering Sumenep market. For manufacturers market development, especially the marketing department must seek markets outside Madura Island Sumenep or even achieve the vision that has been set

#### b. WO strategy

- 1. Improving technologies are adopted to improve the quality of the product so that in the end all of the production processes is done with technology without compromising the cleanliness to maintain product quality.
- 2. Partnership and improve the layout of the production, a collaboration in the acquisition of raw materials to maintain the availability of raw materials both regarding the type and quality of production and build a unique layout.
- 3. Examines aspects of management and marketing make improvements to the management of existing businesses as well as reviewing the marketing aspects such as segmentation and market position to market the product by the plan.

# c. ST strategy

 Maintaining good relations with distributors and consumers it is necessary for the sustainability of the mutual relationship between producers and consumers as well as distributors.



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- 2. Extend Reach of the promotion, the promotion means not only done on one side that is using the online system, but the other hand as through electronic media, word of mouth, through leaflets and other promotional means should be made to the level of product introduction among the wider community.
- 3. Evaluating the internal condition of the business, the need for improvement in the internal states of existing companies. Evaluatio.

#### d. WT strategy

- 1. Improving the quality of various terms to end the stagnation of trade and facing threats.
- 2. Choosing a product focus, in an effort indeed needed the development of products or alternative products.
- 3. Improving the ability of management companies to add competitiveness to include training in the management of the company for those who are in the company's core position.

Based on the analysis of internal and external environment agroindustry herbs, as well as the formulation of strategic alternatives that have been made, the position of the business is in quadrant I, namely the use of force as well as the opportunities that have for sustainability and business development (aggressive strategy). Based on this position can be seen, the focus of an appropriate strategy to be applied in this effort is SO strategy, while the SO strategy for agroindustry businesses herbs is:

- 1. Market penetration.
- 2. Pay attention to the sustainability of production.
- 3. Expand product distribution.
- 4. Mission by way of introduction to the product outside of Madura.

#### 4. CONCLUSION

On the results of the feasibility analysis calculations have been done shows that the NPV value of Rp. 241,604,291.70, -; Payback period is 1.53 years; IRR is 58.80% and the Net B / C of 2.35. Alternative strategies can be applied to agroindustry herbal based business position is in quadrant I which STRATEGIES SO, the SO strategy, there are four alternative strategies that can be used, among others: market penetration, pay attention to the sustainability of production, expand product distribution, carrying out the mission by conducting introduction of products to the outside of Madura.



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#### **REFERENCES**

- Ali, M. (2014). AGRIBISNIS "BEBEK SINJAY" DALAM PERSPEKTIF KEWIRAUSAHAAN DAN PEMASARAN.
- Pratiwi, Y. I., Ali, M., Setiawan, M. I., Budiyanto, H., & Sucahyo, B. S. (2017). Urban Agriculture Technology to Support Urban Tourism. *ADRI International Journal Of Agriculture*, 1(1).
- Arsyad L. (1994). Business forecasting. BPFE. Yogyakarta.
- Ariadne, C. (2009). Strategic Business Development of Instant Herbal Beverage Coffee "Oriental Coffee" on CV Agrifamili Renanthera, Bogor. (Essay). IPB. Bogor.
- Bhara, M. (2005). Influence of coffee Tiered Per Dose Oral 30 Days Against Liver Histopathology Overview Wistar rats. Diponegoro University. Semarang.
- Fatmawati, Ika. (2011). Development Model Agro Herbal Remedy Madura Sumenep. Proceedings of the Regional Growth Strategy Build quality in global imbalances. Wiraraja University. Sumenep.
- Fatmawati, Ika. (2014). Agro Herbal Remedy worthiness Madura Sumenep. Journal of Agricultural Fir Vol 10 No. 1 in 2013. Sumenep.
- Hernando, F. (1996). Farming Sciences. PT. King Grafindo Persada. Bandung.
- Nazir, M. (1999). Research Methodology. Ghalia Indonesia. Jakarta.
- Quinn. (1995). Management of Agro-Industry Strategy and Development. Jakarta.
- Soekartawi. (1995). Farming Sciences. Jakarta: King Grafindo Persada.
- Soekartawi. (1995). Analysis of Production Function. UI Press. Jakarta.
- Soekartawi. (2005). Agribusiness Theory and Application. King Grafindo Persada. Jakarta.
- Sundari, Dian; Wien Winarno. (2001). Informasi Plant Medicine For Anti Fungus. In: World Mirror of Medicine. No. 130. Jakarta
- Zakaria W.A dan Hasyim, H. (1995). Agricultural Development in Post-GATT. Journal Provinsi Lampung in the Age of Social Economics Vol. 1 No. June 1st, 1995. Bandar Lampung. Faculty of Agriculture, University of Lampung. Lampung.