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Priority Prospective Products and Value-Added Agro-industry Products in Ecotourism Areas in Tanah Laut Regency, South Kalimantan, Indonesia

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Abstract

The selection of agro-industrial products is the first step to building superior and prospective agro-industrial products that have a solid and resilient structure in competing based on market opportunities and production capabilities. Agro-industry in ecotourism areas is an alternative approach in strengthening local agro-industry development by integrating all components, including business actors, in developing agro-industrial products. This study aims to determine the priority of prospective products and the added value of agro-industrial products in ecotourism areas. Analysis of the data used includes: (1) prospective agro-industry products with multi-criteria decision analysis using the Bayes method based on expert respondents' assessments, (2) added value of agro-industrial products using the Hayami method. The study results based on the assessment of expert respondents with multiple criteria including production technology capabilities and skills, market opportunities, commercial value, employment, impact on other products, and investment/business capital indicate that each alternative to agro-industry products has its advantages in each criterion and can assist in making decisions on which agro-industry products can be prioritized products to be developed. The results of the added value calculation using the Hayami method show that all prospective agro-industry products in ecotourism areas have added value and guarantee that industrial players who do business get more significant profit opportunities than selling products in the form of raw materials. The implications of the results of this study can help business actors, ecotourism managers, government, private sector, and stakeholders in developing agro-industrial products in ecotourism areas in an integrated and sustainable manner.

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Introduction

Agro-industry processes agricultural raw materials, transformation and preservation by physical or chemical changes, storage, packaging, and distribution. Agro-industrial products can ensure optimal utilization of agricultural products because they can provide added value through the linkages between cultivation, post-harvest, and processing. Agro-industry can also have a positive impact on the economy, such as increasing the productivity of farmers and business actors and promoting more equitable growth.

The agro-industrial sector in Tanah Laut Regency is in line with the development of the agricultural sector, which has an essential and strategic role with the contribution of Gross Regional Domestic Product (GRDP) of 18.90 percent; the rapid development of the industry also supports the agro-industrial sector. The agro-industrial sector with the advantages of processed products from agriculture, plantations, livestock, fisheries, and natural materials is favored by the tendency of people's lifestyles that lead to the use of natural ingredients as substances that are efficacious for medicine, health care, and fitness, cosmetics, functional foods, and daily body care products (Nugroho, 2017). Among 1,500 companies, there are 1,004 companies engaged in the food sector, with 65 percent of the total workforce absorbed by the company (Bank Indonesia, 2019). In addition, community business fields in the agricultural sector reached 50.99 percent (Tanah Laut Regency Goverment, 2019).

The development of agro-industry with superior commodities has competitiveness with local raw materials. It has a more incredible opportunity to add value-added and high exchange rates with a regional approach, especially ecotourism areas that already have potential objects of attraction with the concept of a sustainable comparative and competitive integration. The selection of agro-industrial products in ecotourism areas has strategic, technical, socio-economic, and institutional meanings. The selection of agro-industrial products is the first step to building superior and prospective agro-industrial products that have a solid and resilient structure in competing based on market opportunities and production capabilities. Agro-industry in ecotourism areas is an alternative approach in strengthening by integrating all components, including business actors, in developing agro-industrial products. Agro-industry and ecotourism in Tanah Laut Regency can be combined and developed into an integrated concept because, in almost all tourist attraction locations, there are various kinds of leading agro-industry products that are prospective and can provide added value products and special uniqueness. Tourists do not just see the scenery and enjoy the natural beauty but can be directly involved in the process of making products, creative industries, and other local wisdom. This local wisdom is the basis of independence and self-reliance, strengthens community participation in the empowerment process, and is a valuable resource (Hatta, 2016). The involvement of tourists is increasingly attractive when it gets a touch of innovation, technological development, and product differentiation that can be a force for the development and contribution of ecotourism (Mastika, 2018). In this regard, the potential of agro-industry in ecotourism areas is an excellent opportunity in developing alternative agro-industrial products by paying attention to local advantages potential natural resources, ensuring local community involvement, increasing experience, and encouraging more productive small-scale businesses based on prospective product priorities using decision making. Multi-criteria with the Bayes method and analysis of the added value of agro-industry products using the Hayami method with a regional cluster approach in ecotourism areas is expected to increase the contribution of the agro-industry sector and the ecotourism sector to the regional development of Tanah Laut Regency.

Materials and methods

The research was carried out in 7 ecotourism areas located in 6 sub-districts in Tanah Laut Regency. The research was carried out in several stages, including: Preliminary studies, including literature study,

observation, and field survey. Prospective product analysis using a multi-criteria decision-making system using the Bayes method by quantifying the opinions of 3 expert respondents consisting of academics and bureaucrats/local government officials through interviews and questionnaires. According to Marimin (2012), the Bayes method is one of the techniques that can be used to analyze the best decision-making from several alternatives to produce optimal results. Decision-making with the Bayes method is carried out through efforts to quantify the possibility of an event occurring and is expressed by a number between 0 and 1 or its conversion scale.

It seems to produce optimal decisions, and various criteria need to be considered.

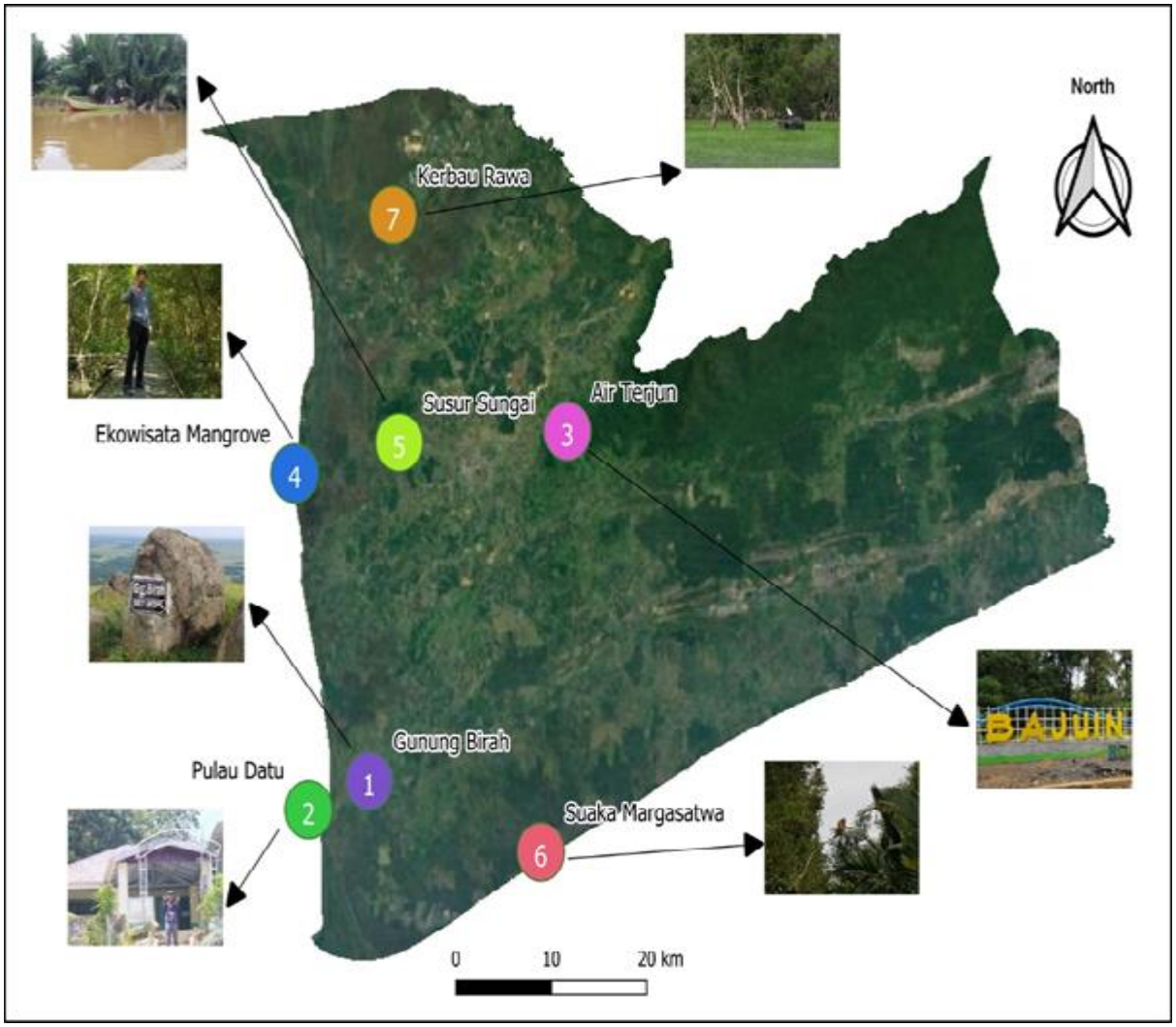

Fig. 1. Map of prospective agro-industry products in ecotourism areas.

Information: 1= Palm and field sugar products (Ecotourism Gunung Birah), 2= Amplang products and fish crackers (Ecotourism Pulau Datu),3= Banana and cassava chips products (Ecotourism Air Terjun), 4= Fish crackers and amplang products (Ecotourism Mangrove), 5= Salted/dried river fish products (Ecotourism Susur Sungai), 6= Palm sugar products, fish crackers, salted/dried fish (Ecotourism Suaka Margasatwa), 7= Haruan fish products (Ecotourism Kerbau Rawa).

The stages of the Bayes method include

1) Determining decision alternatives: Alternative prospective products are several downstream agro-industry products that can be developed. 2) Develop decision criteria: Several decision criteria according to Abdullah (2012); Fakhrurrazi (2018); Purba *et al.* (2015); Syam *et al.* (2019), among others: production technology capabilities and skills, market

opportunities, commercial value, employment, multiple impacts on other products, investment/business capital.

3) Determine the weight of each criterion by expert respondents.

4) Assessing agro-industry products on each criterion.

5) Calculate the value of each alternative using the equation.

$$\text{Total Value } i = \square \sum_{j=1}^{m} \text{Value } ij \text{ (Krit } j)$$

where: □

Total Value i = Total final value of alternative i
Value ij = Value of alternative i on the j criteria
Krit j = the level of importance (weight) of the j criteria
I = 1,2,3,...n; n = number of alternatives
j = 1,2,3,...m; m= number of criteria

6) Ranking/priority of agroindustry prospective product decisions.

Analysis of the added value of agro-industry products with the following stages:

1) Collecting product data regarding inputs, outputs, and prices.

2) Calculating the level of acceptance and profit and added value based on the data and calculation results in the first stage.

3) Calculating remuneration in the form of profit in percent (%) for company owners and workers.

Results and discussion

Prospective agro-industry products

Prospective agro-industry products in ecotourism areas use several criteria, including:

Ability, skills, and availability of production technology

Describes the level of ability and availability of technology used is easy to use and easy to obtain in developing agro-industrial products, considering that the processing requires various tools and machines according to each process's needs. According to Abdullah (2012) and Howara (2013), processing technology is prioritized in product development. This criterion strongly supports the development of agro-tourism based on integrated agro-industry because the presence of technology affects productivity, achieves production targets, fulfills market demand in quality and quantity, and provides quality assurance and product safety.

Table 1. Research place.

No	Location	Attraction
1	Kandangan Lama	Ecotourism Gunung Birah
2	Tanjung Dewa	Ecotourism Pulau Datu
3	Sungai Bakar	Ecotourism Air Terjun
4	Pagatan Besar	Ecotourism Mangrove
5	Panjaratan	Ecotourism Susur Sungai
6	Sabuhur	Ecotourism Suaka Margasatwa
7	Benua Raya	Ecotourism Kerbau Rawa

The processing process changes inputs into outputs; to achieve this goal, technology or method is needed to process raw materials into finished goods.

Technological developments in processing a product greatly facilitate the performance of a company, one of which is to add value to the resulting product (Retnoningsih *et al.*, 2016). The role of processing technology is closely related to the production activities of agro-industrial products marketed in ecotourism areas, and these products will provide added value for products and processes typical of ecotourism places.

Table 2. Calculation of the value-added analysis of agro-industrial products.

No.	Description	Calculation Formula
	I. INPUT, OUTPUT, AND PRICE	
1	Output(kg/ process)	1
2	Input(kg/ process)	2
3	Labor (HOK/ process)	3
4	Conversion Factor	1: 2
5	Labor Coefficient	3: 2
6	Output Price (Rp/Kg)	6
7	Average Wage (Rp/kg)	7
	II. ADDED VALUE AND BENEFITS	
8	Input Prices (Rp/kg)	8
9	Other Input Values (Rp/kg)	9
10	Output Values (Rp/kg)	4 × 6
11	a. Value Added (Rp/kg)	10-8-9
	b. Value Added Ratio (%)	11a : 10
12	c. Labor Benefits (Rp/kg)	5 × 7
	d. Value Added Ratio (%)	12a : 11a
13	e. Profit (Rp/kg)	11a – 12a
	f. Profit Rate (%)	13a : 11a
	III. REPLY PRODUCTION FACTOR	
14	Margin	
	a. Labor Income (%)	12a: 14
	b. Contribution of Other Inputs (%)	9: 14
	c. Processing Profit (%)	13a: 14

Source: (Hayami et al., 1987).

Table 3. Research data analysis.

No	Data Analysis	Criteria	Source Data	Technique Collection Data	Method Analysis
1.	Prospective Agro-industry Products	Technological capabilities, market opportunities, commercial value, employment, multiple impacts on other products, and investment/business capital.	1. Expert Respondents	1. Literature Study 2. Observation 3. Field Survey 4. Interview 5. Questionnaire	Method Bayes
2.	Added Value of Agroindustry Products	Inputs, outputs and prices, levels of income and profits, remuneration in the form of profits for business owners and workers.	1. Business Actors	1. Literature Study 2. Observation 3. Field Survey 4. Interview 5. Questionnaire	Method Hayami

Market opportunities

Shows the prospect of demand and interest of customers and tourists to agro-industry products to estimate the current and long-term conditions with guidance from past data. It is essential to pay attention to market opportunities and demand from agro-industry products that support ecotourism. According to Abdullah (2012), the existence of opportunities and market demand will be one of the attractions in the development of ecotourism, increasing the number of tourists.

Commercial value

Describes the possibility of a high-value product so that the profits that may be obtained will also be high. The greater the possibility of profit, the greater the positive impact obtained by business actors from developing the product. Product development is a

step to produce agro-industrial products that are commercially achievable to generate a rate of return on capital. It seems to achieve product development with a high commercial value; a series of activities are needed from planning, designing, and product development. These stages start from exploring ideas, developing concepts, designing systems and details, making prototypes, evaluating and testing technical feasibility and commercial feasibility, and the distribution stage.

Table 4. Prospective agro-industry products in ecotourism areas.

No	Prospective Agro-industry Products	Ecotourism Objects
1	Palm sugar and lahang	Ecotourism Gunung Birah
2	Amplang and fish crackers	Ecotourism Pulau Datu
3	Banana and cassava chips	Ecotourism Air Terjun
4	Fish crackers and amplang	Ecotourism Mangrove
5	Salted/dried river fish	Ecotourism Susur Sungai
6	Palm sugar, fish crackers, salted/dried fish Haruan crackers	Ecotourism Suaka Margasatwa
7		Ecotourism Kerbau Rawa

Absorption of labor

Indicates the number of workers absorbed in the development of the agro-industry product. The longer and more complicated the processing process, the more significant the involvement of the workforce in the production department. An increase in the workforce is positively correlated with an increase in the welfare of the local community. The aspect of labor absorption is an aspect that is taken into consideration, considering that one of the objectives of agro-industry products is to improve the welfare of local communities. Developing integrated and well-integrated agro-industry is very important in increasing the added value of agricultural commodities and employment, as indicated by the decline in open unemployment or underemployment.

Table 5. Determination of the weight of each criterion of all experts.

No	Criteria	Weight
1	Production Technology Capability and Skills	0.2
2	Market Opportunities	0.3
3	Commercial Values	0.2
4	Labor Absorption	0.1
5	Multiple Impacts on Other Products	0.1
6	Investment/Business Capital	0.1
	Total Weight	1.0

Multiple impacts on other products

Shows the impact of developing one product on other products. The support or benefits given by a product to other products is an essential criterion because it will increase the value of each product developed. For example, the production process of product A is part of the process of product B, or by buying product A, tourists are interested in buying product B. In product development, the benefits and multiple impacts caused by a product are expected with the creation of a product that can affect product activities other. Processing processes and market forces drive this dual impact; an increase in production and demand for one type of agro-industrial product will encourage an increase in the production and demand for other products. According to Domanski and Gwosdz (2010), the application of multiple impacts has enormous benefits in the industrial sector, and the effect is an increase in the economy both internally and externally to the company.

Table 6. Assessment and calculation of each alternative prospective agro-industry product for all expert respondents.

No	Criteria	Prospective Product Alternative						
		1	2	3	4	5	6	7
1	Production Technology Capability and Skills	4.0	5.0	3.7	5	2.3	4.3	4.3
2	Market Opportunities	4.7	5.0	4.3	4.7	4.0	4.7	4.3
3	Commercial Values	4.7	4.7	4.3	4.7	3.7	4.7	4.0
4	Labor Absorption	4.0	4.7	3.7	4.7	3.3	4.0	4.0
5	Multiple Impacts on Other Products	3.3	4.7	3.3	4.7	3.0	4.3	4.3
6	Investment/Business Capital	3.3	4.3	3.7	4.7	3.3	4.0	3.7
	Total Bayes Value	7.67	7.85	7.60	7.83	7.37	7.74	7.66

Information: 1= Palm and field sugar products (Ecotourism Gunung Birah), 2= Amplang products and fish crackers (Ecotourism Pulau Datu),3= Banana and cassava chips products (Ecotourism Air Terjun), 4= Fish crackers and amplang products (Ecotourism Mangrove), 5= Salted/dried river fish products (Ecotourism Susur Sungai), 6= Palm sugar products, fish crackers, salted/dried fish (Ecotourism Suaka Margasatwa), 7= Haruan fish products (Ecotourism Kerbau Rawa).

Investment/business capital

Indicates the need for a certain amount of capital (both fixed and variable capital) used in the production process of agro-industry to gain profit. Investment is essentially the placement of several funds at this time with the hope of obtaining profits in the future. Aspects of investment/business capital need to be considered in developing a product.

Table 7. Order of priority of agro-industry prospective products in ecotourism areas.

No	Ecotourism Object	Prospective Product Alternative	Value Bayes	Prospective Product Order
1	Ecotourism Pulau Datu	Amplang and fish crackers	7.85	1
2	Ecotourism Mangrove	Fish crackers and amplang	7.83	2
3	Ecotourism Suaka Margasatwa	Palm sugar, fish crackers, salted/dried fish	7.74	3
4	Ecotourism Gunung Birah	Palm sugar and land	7.67	4
5	Ecotourism Kerbau Rawa	Haruan fish crackers	7.66	5
6	Ecotourism Air Terjun	Banana and cassava chips	7.60	6
7	Ecotourism Susur Sungai	Salted/dried river fish	7.37	7

This criterion implies that production cost factors ranging from the procurement of raw materials, provision of machinery and equipment to operational costs must be considered carefully in terms of efficiency because it will affect the selling price and competitiveness of the product, so factors that can cause inefficiency must be avoided (Abdullah, 2012). One of the crucial factors in developing agro-industry products is that the production costs must increase the added value, which is relatively high from the value of the primary commodity. Thus, increasing the added value of this agro-industry product is a benefit that can support the success of ecotourism development. The priority order of prospective agro-industry products shows that agro-industrial products in each ecotourism area can be developed from a technical aspect and an economic added value criterion. Product development is a step that can produce more commercial agro-industry products and can achieve a rate of return on capital by arranging suitable activities starting from planning, exploring ideas, designing, manufacturing, testing, distributing until product development is achieved.

According to Fakhrurrazi (2018), the benefits and multiple impacts caused are driven by the processing process and market forces; an increase in the amount of production and demand for types of products will encourage an increase in the amount of production and demand for other products.

Table 8. Added-value of agro-industrial products in ecotourism areas.

No	Ecotourism Object	Types of products	Value-added (Rp)	Value Added Ratio (%)	Processor/Business Advantage (%)
1	Ecotourism	Fish Cracker	71.623	44,76	56,34
	Pulau Datu	Amplang	53.475	54,85	63,20
2	Ecotourism	Amplang Fish	48.375	53,75	62,72
	Mangrove	Crackers	70.848	44,28	55,72
3	Ecotourism	Palm Sugar	4.910	61,38	68,43
	Suaka	Crackers	29.850	49,75	56,70
	Margasatwa	Salted/Dried	8.700	43,50	75,00
4	Ecotourism Gunung	Fish	5.010	62,63	70,14
	Birah	Palm Sugar	1.400	51,85	73,53
5	Ecotourism	Lahang	66.525	55,44	68,45
	Kerbau Rawa	Haruan Fish			
6	Ecotourism	Crackers	2.800	25,00	23,17
	Air Terjun	Cassava Chips	4.300	38,39	35,05
		Banana Chips			
7	Ecotourism	Salted/dried	6.000	18,75	68,57
	Susur Sungai	river fish			

According to Hadiguna and Marimin (2007), agro-industry is the center of the agricultural chain and plays an essential role in increasing the added value of agricultural products in the market. Agro-industry requires a supply of quality raw materials and quantities following needs. Udayana (2011) explains that agro-industry is an industrial activity that utilizes agricultural products as raw materials, designs, and provides equipment and services, including agricultural product processing industries, industries that produce agricultural equipment and machinery, agricultural input industries (fertilizers, pesticides, herbicides, and others) and the service industry of the agricultural sector.

Agro-industry can be a superior product and have an essential role in developing a region. Agro-industry plays a role in the creation of added value, absorption, and productivity of institutions such as labor and markets, the role of improving the quality and empowerment of human resources (labor) as well as improving market institutions so that they can achieve and expand marketing reach (Elizabeth, 2010). Critical criteria that must be met in determining leading agro-industry include (1) quantity and continuity of raw materials, (2) types of derivative products produced, (3) socio-cultural conditions of the local community, (4) market and marketing opportunities, (5) value-added products, (6) production technology, (7) employment, (8) economic impact on the regional economy, (9) environmental impact, (10) supporting infrastructure, (11) investors/investment capital, and (12) government/local government policies (Fuadri, 2009).

Added-value of agro-industrial products

Calculation of added value using the Hayami method by collecting production data, including input and output data along with their prices, calculating the level of acceptance and profit and added value, calculating the added value ratio, calculating remuneration/profits for business owners and workers. Due to the production technology's ability and skills have not been maximized. The calculation of the added value of all products in ecotourism areas shows the profit obtained by the processor/business is above 50%. Only banana and cassava chip products at the Bajuin waterfall location get processing/business profits below 50%. Products are packaged modestly without product labels and any supporting packaging equipment so that the prices of products sold to the market are still relatively low. A product can be judged from its packaging and is the

primary determinant of attracting buyers' interest in consuming a product. Product packaging and protecting food from damage are also an attraction for consumers to buy and enjoy it. The success of the attractiveness of the packaging is determined by the aesthetics that are taken into consideration, the harmony between the shape and arrangement of the graphic design without forgetting the impression of the type, characteristics, and nature of the goods/products produced, products in the form of raw materials. The value-added analysis is a method of estimating the extent to which raw materials that have been processed and treated undergo changes and produce added value/profits for business owners and workers. According to Hayami *et al.* (1987), the principle of the Hayami method is to estimate changes in the value of raw materials after receiving treatment, namely the difference between the product value and the cost of raw materials and other inputs. In addition, this method is also known for the conversion factor, labor coefficient, product value, value-added ratio, employee benefits, other input contributions, and the level of profit and margin. This method also provides convenience in understanding and application and provides complete information (Hidayat *et al.*, 2012).

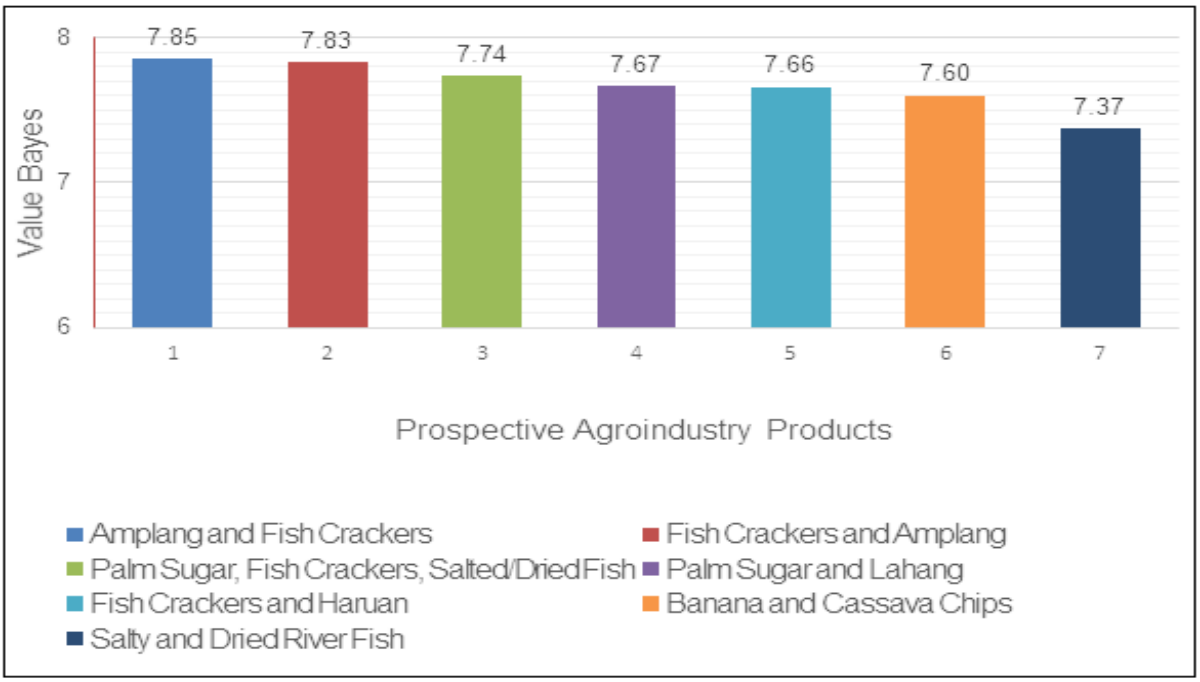

Fig. 2. Graph of Bayes value of agro-industry prospective products in ecotourism areas in Tanah Laut Regency.

Value-added is a gross added value because it does not consider employee benefits. The added value generated is strongly influenced by the selling price of the product; if the product can be sold at a high price, then the added value generated is also high. The value of the operating profit is the net benefit received by the industrial owner because he has calculated the expenditure for labor and the costs of the principal and additional inputs.

Conclusion

The priority of prospective agro-industry products with Bayes' multi-criteria decision shows that each prospective agro-industry product in ecotourism areas has attractiveness, advantages, and prospects for development. The priority order of prospective agro-industry products is amplang and fish crackers (Bayes 7.85), fish crackers and amplang (Bayes 7.83), palm sugar, fish crackers, salted/dried fish (Bayes 7.74), palm sugar, and land (Bayes 7.67), haruan fish crackers (Bayes 7.66), banana and cassava chips (Bayes 7.60) and salted/dried river fish (Bayes 7.37). All prospective agro-industry products in ecotourism areas have added value and ensure business owners get more significant profit opportunities than selling products in the form of raw materials.

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Reference

Abdullah S. 2012. Engineering community-based agro-tourism development system. Bogor Agricultural University Postgraduate School.

Bank Indonesia. 2019. Regional Economic and Financial Studies of South Kalimantan Province. Central Bank of the Republic of Indonesia.

Domanski B, Gwosdz K. 2010. Multiplier Effects In Local And Regional Development. Quaestiones Geographicae **29(2),** 27–37.

Elizabeth R. 2010. Development of Foodstuff Agroindustry to Increase Added Value through Institutional Transformation in Rural Areas. Journal of Food Crops Science and Technology **5(1)**, 102–112.

Fakhrurrazi. 2018. Institutional Model of Cocoa Agro-Based Agro-Tourism Development in Pidie Jaya District, Aceh Province. Bogor Agricultural University Graduate School **17(3)**, 244–260. https://doi.org/10.12695/jmt.2018.17.3.6.

Fuadri. 2009. Strategy for Development of Leading Commodity Agroindustry of West Aceh Regency. Bogor Agricultural University 1–5.

Hadiguna R, Marimin A. 2007. Supply Allocation Based on Leading Products for Fresh Vegetables Supply Chain. Journal of Industrial Engineering 85–101.

Hatta GM. 2016. Wetlands, Local Wisdom, and Technology. Lambung Mangkurat University National Seminar.

Hayami Y, Kawagoe T, Marooka Y, Siregar M. 1987. Agricultural Marketing and Processing in Upland Java A Perspective From A Sunda Village. The CGPRT Centre (8).

Hidayat S, Marimin Suryani A, Yani M. 2012. Modification of the Hayami Method for Calculation of Added Value in the Palm Oil Agroindustry Supply Chain. Journal of Agricultural Industrial Technology **22(1),** 22-31. https://doi.org/10.1017/CBO9781107415324.004.

Howara D. 2013. Strategy for Development of Fishery Products Processing in Donggala Regency. Journal of Agroland **17(3),** 75–81.

Marimin. 2012. System Analysis and Decision Making. Module IV: Performance Index-Based Decision Making 63–84.

Mastika IK. 2018. The Development of Ecotourism with Local Wisdom In The Former Besuki Residency Area, East Java MEET **4(2),** 240–252.

Nugroho A. 2017. Textbook: Natural Material Technology. In Lambung Mangkurat University Press.

Purba SAB, Hartiati A, Tuningrat IAM. 2015. Priority Selection of Agro-tourism Commodities Using the Analytical Hierarchy Process (AHP) Method in Candikuning II Village, Kec. Baturiti, Kab. Tabanan. Journal of Agro-industrial Engineering and Management **3(1),** 82–92.

Retnoningsih F, Suryawardani IO, Parining N. 2016. Priority Selection of Processed Chocolate Marketing Strategy Based on Analytical Hierarchy Process Method (Case Study at Magic Chocolate Company, Gianyar Regency, Bali Province). E-Journal of Agribusiness and Agrotourism **5(1)**.

Syam H, Ma'arif MS, Eriyatno E, Sailah I,

Machfud M, Didu MS. 2019. Design and Build Strategic Model of Decision Support System for Development of Kako-Based Agroindustry Through Business Network Patterns. Journal of Agricultural Industrial Technology **16(1),** 18–27.

Tanah Laut Regency Government. 2019. Tanah Laut Regency Medium-Term Development Plan 2018-2023. RPJMD document 2018-2023 144–163.

Udayana IGB. 2011. The Role of Agroindustry in Agricultural Development. Journal of Agricultural Industrial Technology **3(8)**. http://repository.warmadewa.ac.id/29/1/18-37-1-PB