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Competitive and Comparative Analysis of Excellence in Arabica Coffee in Bener Meriah Regency

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***Abstract* - Coffee is a type of tropical plant that can grow anywhere, except in places that are too high with very high temperatures or barren areas that are not suitable for plant life. The purpose of the study was to analyze the competitive advantage of gayo arabica coffee commodities in Bener Meriah regency and to analyze the comparative advantage of gayo arabica coffee commodities in Bener Meriah regency. This research uses the porter's diamond method and the RCA method. The results of the study show that in general coffee farming has a competitive advantage. Can be seen from several factors such as resources, demand factors, related industry factors and supporting industries, competition factors and the structure and strategy of the company and government role factors. Based on the rca method, most values indicate that coffee farming has a high comparative competitiveness value.**

***Keywords* - Competitiveness, Competitive, Comparative, Berlian Porter, RCA.**

I. Introduction

Coffee is a type of tropical plant that can grow anywhere, except in places that are too high with very high temperatures or barren areas that are not suitable for plant life. For several centuries, coffee has become a trade ingredient because coffee can be processed into delicious drinks. In other words, coffee is a refreshing body and mind. A weak body and drowsiness can be lost after drinking hot coffee, especially people who have become coffee addicts, if they do not drink coffee it will feel tired and can not think well (Simaibang. 2008).

Based on the Fixed Figures of Indonesian Plantation Statistics (Directorate General of Plantation, 2014), Indonesian coffee production in 2013 was recorded at 675,882 tons. This production originated from 1,241,713 ha of coffee plantation area where 96.16% of them were cultivated by the people (PR) while the rest were cultivated by large privately owned plantations (PBS) of 1.82% and large state-owned plantations (PBN) of 2 , 02%.

Coffee commodities are also an export commodity, increasing demand is not only from within the country but also from abroad. The following table shows the export of Arabica coffee.

Table 1. Coffee Export Volume and Value for 2011 - 2016

Year	Export	
	Volume	Value
2011	346.493	1.036.671
2012	448.591	1.249.520
2013	534.023	1.274.209
2014	584.816	1.339.341
2015	602.021	1.397.735
2016	605.112	1.423.723

Source: Central Statistics Agency, 2017

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From Table 1, it can be seen that every year there is an increase in demand for arabica coffee from Indonesia. Judging from Indonesia's potential such as sufficient human resources, available land and a climate that is compatible with coffee plants, Indonesia should be able to compete with other coffee exporting countries. Through a number of opportunities, advantages, and obstacles that are discussed in the formulation of the problem it is important to analyze it in terms of its competitiveness in the face of the level of competition in the international market with the existing market share.

Referring to the comparative advantage of arabica coffee in the Province of Nanggroe Aceh Draussalam, land alone is not enough to encourage coffee production capabilities. Most of the products produced by smallholders who still use minimal technology require some advances in technology that can support the production process more efficiently. other than that slow to do plant rejuvenation, the lack of supporting facilities and infrastructure resulted in the low quality of coffee, so this is what later became the basis for researchers to conduct a study related to the competitive and comparative analysis of gayo arabica coffee commodities in Bener Meriah Regency. The purpose of this study was to analyze the competitive advantage of gayo arabica coffee commodities in Bener Meriah Regency and to analyze the comparative advantage of gayo arabica coffee commodities in Bener Meriah Regency.

II. Method Research

To analyze the competitive advantage of a farm in the study area, descriptive analysis was used by using the theory of Berlian Porter, which said there were 4 criteria factors used, namely by analyzing the factors below:

a. Factor Conditions

Factors that influence the creation of an area into an area that has competitive value. Each region has the same opportunity to become an area that produces a superior commodity. Depends again on how the area empowers existing resources.

b. Demand Conditions

The demand condition is one of the factors that must be considered to see whether the area has an advantage or not.

c. Supporting and Related Industries

The existence of a good and competitive processing industry will increase competitiveness, improving the direction of the industry in a more innovative direction will support the competitiveness of a country.

d. Strategy, Structure and Competition between Companies

There are strategies that can develop commodities into a product that has high excellence and competitiveness.

To analyze the comparative advantage of arabica coffee in the study area, the analytical method used with Revealed Comparative Advantage (RCA) analysis, where the RCA method is an analytical method for determining comparative advantage or competitiveness. The export performance of Indonesian gayo arabica coffee to Indonesian importing countries is a variable measured by calculating the value of Arabica coffee production on the total production of all coffee commodities in Nanggroe Aceh Darussalam which is then compared with the value of coffee commodity production in Indonesia with the total value of coffee production in Indonesia. The RCA calculation method is as follows:

$$RCA = (Xij / Xj)/(Xiw / Xw)$$

Where :

Xij: Export production value of coffee commodities in Bener Meriah

Xj: The value of the total export production of other commodities in Bener Meriah

Xiw: Value of coffee commodity export production in Nanggroe Aceh Darussalam

Xw: The total value of other commodity export production in Nanggroe Aceh Darussalam

III. Results And Discussion

a. Analysis of Competitive Advantages of Arabica Coffee

Berlian Porter's theory consists of four factors that determine the size of the competitiveness of the coffee processing industry, namely resource factors, demand factors, related industry factors and supporting industries, competition factors and the structure and strategy of the company. In addition to these four factors there are still more factors that affect competitiveness, namely the role of the government.

b. Resource Factor (Factor Condition)

The condition of resource factors consists of natural resources, human resources, capital resources, and infrastructure resources, technological resources.

1. Natural Resources

Robusta coffee requires a place with an altitude of 400-700 m above sea level as well as a temperature of 21-24 C. Whereas Arabica coffee requires a place with a higher altitude than Robusta which is 700-1700 m asl and with temperatures of 16-20 C.

2. Human Resources

As one of the factors of production, the quality of human resources greatly determines the success of coffee agribusiness. Overall human resources play a role in supporting the competitive advantage of coffee agribusiness. Most coffee plantations are community plantations. This plantation is a collection of small farms owned by farmers with an area of 0.2 to 2 ha. Indonesia is a country with abundant human resources. In the research area, it is known that most farmers have a long experience in farming.

3. Science and Technology Resources

Research institutions can provide ways to use technology properly and correctly and provide ways to improve quality quality in accordance with consumer preferences for coffee farmers. The existence of such cooperation is expected to produce better or improved coffee quality. In contrast to technology at the farm level, technology at the coffee industry level is increasingly sophisticated. Many inventions of high-volume coffee processing machines produce better quality coffee. Overall, science and technology resources have supported the competitiveness of Indonesian coffee.

4. Capital Resources

Capital is an important aspect in developing the industry coffee processing in research areas, with adequate capital, of course, the coffee processing industry will develop well and be able to compete in the international market, but the capital ownership of the actors of farming is relatively low. In general, capital resources for investment in the coffee industry are legal investments such as PMA, PMDN, BUMN, BUMD and Cooperatives. As for the own plantation business, the capital obtained is only from the Cooperative and assistance from the plantation service or the agricultural service

5. Infrastructure Resources / Road Development

Infrastructure resources are physical facilities and infrastructure that determine the competitiveness of the coffee processing industry in the research area. These facilities include coffee cultivation, storage and transportation, transportation, and telecommunications. Especially for Arabica coffee which demands a low temperature environment and is generally found in the highlands, it has not been supported by adequate infrastructure facilities.

From the results of the questionnaires distributed, it is known that there are several indicators in the Input factor (Conditions) where each factor has a different likert result. The likert results from the questionnaire are as follows:

Table 2. Likert Results Diamond Porter Method Against Input Factors

No	Question	Likert Value	percentage (%)
1	**Factor (Input) condition**		
	Natural Resources	3,57	71.4
	Skilled and experienced human resources	3,54	70.8
	Availability of Cooperatives / Financial Institutions	3,45	69
	Road construction	4,23	84.6
	Technology used	3,32	66.4
Total	**3,62 (Enough to support)**		

Source: Primary data processed in 2018

From Table 2, it is known that the factor indicator that has the highest Likert value lies in the indicators of road construction while the indicator which has the lowest value lies in the technology used. This means that the current indicator of road construction (Infrastructure) that has taken place in the research area is sufficient to support Arabica coffee farming activities in the study area. Natural resources also have a high value, from the results of interviews that natural resources in the research area are known to have a high influence because the climate and soil fertility according to farmers are very good for growing arabica coffee. In addition, human resources have a quite high influence, this can be seen from the results of questionnaires where each farmer has an average experience of farming

Arabica coffee over 8 years. In terms of location there are also cooperatives / financial institutions such as BPR which are one of the financial means of financing farmers in the research area. While the technology indicators used are felt by some farmers to not support the Arabica coffee farming activities in the research area.

c. Demand Conditions

The increase in demand for Arabica coffee can be seen from the number of coffee exports which also increases every year. In addition, the increase in Aceh's coffee production in the study area was also due to the demand for coffee in the study area. This is in accordance with the research by Porter in the diamond model which says that the higher the demand, the higher the level of production of a commodity.

Table 3. Likert Results Diamond Porter Method Against Demand Factors

No	Question	Likert Result	Percentage
1	**Demand Condition Factor**		
A	Coffee demand is increasing	3,99	79.8
B	Supportive marketing flow	3,72	74.4
C	Farmer income increases due to good marketing flow	3,67	73.4
D	Support to farmers in each market segment	3,92	78.4
E	The current price is in accordance with the expectations of farmers	3,62	72.4
Total	3,78 **(Enough to support)**		

Source: Primary data processed in 2018

From Table 3, it is known that the factor indicator that has the highest Likert value lies in the coffee demand indicator. This is proven because the level of demand is one of the factors that determine the sustainability of this farming. From the interviews, it is known that the current coffee demand factor is a factor that strongly supports the desire of farmers to continue their business in Arabica coffee in the research area with a value of 3.99.

In addition, the supporting marketing flow is one indicator that has a high value, this can be seen from the results of interviews with farmers and researchers who say that farmers are easy to do marketing. The marketing flow felt by farmers is quite clear, from collectors to exporters in the research area.

Farmer income increases because of the good marketing flow, it is known based on the results of interviews of researchers to Arabica coffee farmers in the research area who say the young marketing channel is one of the spirit of farmers in carrying out agricultural activities, besides the price of farmers is stable due to demand coffee export.

The existence of farmer support can be seen from the assistance provided by the government to the Arabica coffee farming business. In addition to assistance in providing quality to be able to export coffee, there is also assistance with the provision of free fertilizer by the government. The factor that has the lowest value at 3.62 is the determinant price factor. According to farmers interviewed at this time the prevailing prices are above the average, so even though this price factor has the lowest value, it is still a sufficiently supportive factor in the Arabica coffee farming in the study area.

d. Factors of Related Industries and Supporters

Increasing the competitiveness of coffee farming is certainly inseparable from the role of related industries and supporting industries. Related industries have a role as suppliers of raw materials while supporting industries have a role in developing processed coffee products. Industries related to coffee processing are in the form of coffee processing industries and coffee plantations, while the coffee supporting industry is in the form of several parts that focus on the development of coffee beans and development policies for the coffee processing industry, as well as research institutions that help improve coffee quality.

Table 4. Likert Results of Diamond Porter Method Against Factors of Related Industries and Supporters

No	Question	Likert Result	Percentage
1	**Supporting and related factors**		
A	Availability of Coffee Seeds	4,03	80.6
B	Availability of input material	3,72	74.4
C	Availability of processing industries	3,45	69
D	The development of the coffee industry	4,07	81.4
E	Availability of nursery groups, etc.	3,29	65.8
Total	**3,71 (Enough to Support)**		

Source: Primary data processed in 2018

From Table 4 it is known that the highest indicator of factors that have a Likert value lies in the indicators of industrial development in the study area with a value of 4.07. From the results of interviews with farmers it is known that in the research area in the last 10 years there has been a fairly rapid development in the development of the coffee industry. There are several processing of coffee beans in order to increase the maximum sales results, one of which is by selling green coffee. Green coffee is one of the final products that is being enjoyed so much that many people do the processing. In addition, the industry in the area of sachet coffee has also increased.

And the lowest likert value is obtained from the indicator of the availability of nursery groups in the research area. It is known that in the study area there are still few nursery groups available even though farmers themselves are still able to empower their land to carry out their own nursery processes. This causes this factor to be less supportive according to farmers because each farmer has that capability.

However, from the results of interviews and research on the location of research, it is known that the seeds sold and produced by themselves even though they are available but not quite superior, even though one indicator is quite high is the existence of superior nurseries. For this reason, the availability of superior seeds is considered important by farmers in the research area.

The development of the coffee industry is one of the factors that has a high enough value, this is known from the value of the questionnaire and interviews with several farmer groups where they say that the coffee industry began to develop. Not only as ready-made coffee but coffee has changed to other industries such as air freshener.

e. Factors of Structure, Competition and Strategy

The processed coffee market is segmented into two, namely the instant coffee market and the ground coffee market. In the research area itself, the processed coffee market is in the form of ground coffee or real coffee beans that will later be reprocessed by traders by bringing their own brands such as Ulee Kareng and Gayo Coffee. The strategy is to increase partnerships between the coffee processing industry, exporters and farmers to improve coffee quality, eliminate legislation that hinders the development of coffee, improve the quality of coffee beans by encouraging the construction of drying, peeling and sorting facilities in centers coffee.

Table 5. Likert Results of the Diamond Porter Method Against the Staretgi Factors of Farming

No	Question	Likert Result	Percentage
1	**Farming Strategy Factor**		
A	Development of Planted Area	3,69	73.8
B	Maximum use of capital	4.29	85.8
C	Availability of counseling from the Agriculture Service	3,41	68.2
D	Following counseling from related agencies	3.66	73.2
E	Competition between farmers who cultivate coffee	3,33	66.6
Total	**3,68 (Enough to Support)**		

Source: Primary data processed in 2018

From Table 5, it is known that the highest indicator of factors that have a Likert value lies in the indicator of maximum capital utilization. Based on the results of interviews with farmers, it is known by working effectively and efficiently and utilizing all labor and time available that it will produce maximum production, therefore farmers feel that utilizing existing capital is a factor capable of supporting farming, the lowest likert value is on competition between Arabica coffee farmers.

The use of maximum capital has a high enough value, this is from the results of interviews and questionnaires shared which states that every farmer has both personal and loan capital. If implemented properly, the farming will be carried out smoothly. The availability of counseling from the agricultural service has a high value from the results of the questionnaire. Based on the results of interviews with farmers and several related agencies it is known that the agricultural service often conducts information about coffee in their village. This is a tool that is needed by farmers so that farmers can apply the knowledge gained in their farming. This is similar to the indicators following counseling from related agencies which have a high enough value from the results of a questionnaire which says that counseling from the relevant agencies is always followed by farmers in the agricultural area.

In addition, competition indicators among farmers who cultivate coffee can be seen from the results of questionnaires that have low scores. It is known from the results of interviews and questionnaires that among coffee farmers in agricultural areas do not have a sense of competition in damaging Arabica coffee.

f. Role of the Government

The Indonesian government's efforts to improve domestic coffee competitiveness are by establishing a national standardization system since 1975 through Decree of the Minister of Trade No. 266 / KP / X / 76. Based on these standards, the quality of coffee beans is divided into quality 1, 2, 3 and 4, this applies to dry and wet processing (Abdoellah 2003).

Table 6. Likert Results of Diamond Porter Method Against Government Role Strategy Factors

No	Question	Likert Result	Percentage
1	**Role of the Government**		
A	Following the Extension from the least service	3,90	78
B	Government policy in coffee exports	3,85	77
C	Availability of UPJA in the research area	3,60	72
D	Government subsidies in fertilizers, pesticides, etc.	3,92	78.4
E	Supporting factors in the form of facilities and infrastructure are good	3,54	70.8
Total	3.76 **(enough to Support)**		

Source: Primary data processed in 2018

From Table 6 it is known that the highest indicator of factors that have a likert value lies in government subsidies. The government subsidies to coffee farmers in the form of fertilizers, pesticides, and medicines that support coffee farming in the research area. This is a factor that sufficiently supports farmers in carrying out their farming business. And the Likert value is known to be the lowest result obtained by supporting factors and infrastructure, however this factor is still considered to be quite supportive by farmers. In addition, coffee extension factors are considered important in coffee farming, while some counseling that has been done is counseling about coffee standards, counseling about coffee plant pests in the research area.

From the results of research and interviews with village heads, extension workers and farmers who seek coffee farming, it is known that the overall demand conditions are very important factors in trying coffee farming. The higher the demand condition factor, the higher the interest of farmers to do Arabica coffee farming, so that it will increase the competitiveness of farmers. If seen partially, it is known that the utilization factor of capital is the factor that has the highest value, this is because farmers feel that by maximizing all available resources effectively and efficiently, farming can increase.

From the results of research and interviews with village heads, extension agents and farmers who seek coffee farming, it is known that government policy in coffee exports is a factor that plays a role in trying coffee farming. It is known that there are a number of government policies that help coffee exports such as the standard setting of export coffee prices, the application of quality so that the price of coffee has standard sales in other countries.

From the results of research and interviews with village heads, extension workers and farmers who are working on coffee farming, it is known that the availability of UPJA in the research area has a high value. It is known based on the interview results that the rental of alsintan equipment is an important factor because a day farmers do soil processing using alsintan.

g. Comparative Analysis of Arabica Coffee

The competitiveness of Indonesian coffee can be measured by its comparative advantage. The comparative advantage of arabica coffee in the research area of Bukit Subdistrict, Bener Meriah Regency can be analyzed using Revealed Comparative Advantage (RCA) which aims to compare the competitiveness position of Arabica Coffee in the research area with other regions in coffee commodities. If RCA> 1 (more than one), shows the share of Arabica coffee coffee commodities in the study area is higher when compared to the market for Arabica coffee commodities in other regions. The greater the RCA value indicates the stronger the comparative advantage possessed by the village. The RCA values of arabica coffee in the study area in 2010-2016 are as follows:

Table 7. RCA Value of Arabica Coffee in the Research Area

Year	RCA Value	competitiveness
2010	0,478	Low
2011	0,593	Low
2012	0,649	Low
2013	0,737	Low
2014	1,132	High
2015	6,017	High
2016	5,726	High

Source: Primary data processed in 2018

The RCA value can be obtained by dividing the coffee exports in Bener Meriah divided by the total exports in Bener Meriah with Nanggroe Aceh Darussalam Coffee Exports with the total exports of Nanggroe Aceh Darussalam. And if the distribution result is <1, it is known that competitiveness in Bener Meriah is weak. However, if the value of the distribution is> 1, it is known that competitiveness in Nanggroe Aceh Darussalam is strong.

This is in accordance with the literature (Saptana, et.el 2006) which says that the concept that can measure the financial feasibility of a farm is to use revealed competitive advantage calculation which is a measurement of the competitiveness of a farming activity. The high value of competitiveness of a farming business can be seen from the results of the RCA, the higher the RCA value, the higher the country's competitiveness in producing a commodity product.

IV. Conclusion

Based on the results of the research with Porter 's Diamond method, it is shown that coffee farming generally has a competitive advantage. Can be seen from several factors such as resources, demand factors, related industry factors and supporting industries, competition factors and the structure and strategy of the company and government role factors.

Based on the RCA method, most values indicate that coffee farming has a high comparative competitiveness value.

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