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Defect Analysis and Development Strategy for Robusta Coffee of Tanahwulan Village, Indonesia

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Abstract

Coffee is one of the worthy international trade commodities across countries. Coffee quality is strongly influenced by the behavior of farmers from cultivation, harvesting to processing results. The coffee commodity of Tanahwulan village has a unique character so that it has the potential to be developed further. This study aims to examine the defect of Robusta coffee in Tanahwulan village and its development strategy in the future. For this purpose, the defect analysis based of Indonesian National Standard was used to determine the quality of coffee. The SWOT analysis was also used to identify the development strategy of Tanahwulan village robusta coffee. The results showed that the value of coffee quality defects was at the level of random quality. The types of defects in coffee beans were black bean, partially black bean, broken black bean, brown bean, big size outer skin, medium size outer skin, parchment bean, big size parchment, medium size parchment, small size parchment, broken bean, immature bean , bean with one hole, bean with more than one hole, large sized twigs, dirt or stones and medium sized twigs, dirt or stones. The water content and antioxidant activity were 11% and 82.87%, respectively. The taste of brewed coffee has a final value of 75.5 with notes including chocolaty, spicy, dirty, and dark roast. Based on SWOT Analysis, to improve the Quality of Tanahwulan village robusta coffee, it is necessary to apply aggressive strategy or SO strategy. Therefore, this commodity could empower the opportunities to exist.

Introduction

Coffee is one of the worthy international trade commodities across countries (Fitriani et al., 2021; Rosiana et al., 2017). Commercial coffee trade involves many countries as producers, industries, global chains, and consumers (Fitriani et al., 2021). Indonesia is the third producer of coffee (Coffea sp) in the world after Brazil and Vietnam, where Indonesia supplies about 78% of the world's coffee. Indonesia's total coffee production is 644,000 tons, of which part of it is used for export needs (around 59.2%) and the rest is used for domestic needs (40.8%) (Suharaman & Gafar, 2017). There are two types of the cultivated coffee namely Robusta and Arabica, in which Robusta is the most cultivated coffee in Indonesia (Martauli, 2018; Rosiana et al., 2018). The competitiveness of Indonesian coffee is especially famous because there are many specialty coffees such as Kopi Luwak (Luwak coffee) which is known as the most expensive coffee in the world, Mandailing coffee which is Arabica coffee from North Sumatra and other coffees that have a taste that is no less delicious (Apriani et al., 2020).

Although Indonesia is one of the main exporters of coffee, Indonesian coffee still does not have a comparative advantage. This can be caused by several things, including the low quality of Indonesian coffee exports, which is 90% green-coffee. In addition, most Indonesian coffee farmers are small farmers with limited capabilities, which makes most Indonesian coffee farmers harvest coffee while it is still green. The water content of Indonesian coffee has also not reached the recommended standard, which is 12.5% so that a lot of coffee is moldy and broken due to the use of a peeler that is not good so this will reduce the selling value received by Indonesia (Purnamasari et al., 2014). So far, most of the coffee commodities are distributed in the form of primary processed products (dried coffee beans). The coffee is processed as random coffee with low quality and relatively high water content (around 16%). This is due to the technical processing that has not been good. Generally, random coffee that is marketed is not sorted by farmers, so the coffee being traded still contains some ingredients that can reduce the quality of the coffee (Sulistyaningtyas, 2017).

This obstacle is also experienced by coffee farmers in Tanahwulan village who generally process robusta coffee using the dry processing method. Dry processing method is executed by drying the whole un-pulped cherries under the sun (natural sundried) after harvesting (Birhanu et al., 2021). Some coffee producer in Tanahwulan village has not followed the standard of SNI 01-2907-2008 regarding the quality of coffee beans. The quality of coffee beans is determined according to the Indonesian national standard (SNI 01-02907-2008) which includes special quality requirements for Robusta coffee with a defect value system. The value of coffee beans is also determined by their physical appearance, and the character of their taste (Setyani et al., 2018).

Quality is defined as the performance of a product that results in customer satisfaction and is free from defects, in short its suitability for use. Therefore, quality meets or exceeds consumer expectations (Subedi, 2011). Coffee quality is strongly influenced by the behavior of farmers from cultivation, harvesting to processing results (Wahyudi & Mahmudah, 2018). Coffee quality is also a complex property including sensory, bean characteristics, and biochemical contents (Abebe et al., 2020). This quality greatly affects the competitiveness and price of the coffee produced. The low human resource of farmers related to cultivation, harvest/post-harvest to product processing has a negative impact on the quality of coffee which also has an impact on low prices. In addition, weak farmer group institutions have resulted in the selling of their products to traders and collectors at prices far below market prices (Wahyudi & Mahmudah, 2018).

The coffee commodity of Tanahwulan village has a unique character so that it has the potential to be developed further. This study aims to examine the defect value, taste characteristics of Robusta coffee in Tanahwulan village and its development strategy in the future, so that it is hoped that follow-up actions can be taken to improve the quality of typical coffee from Tanahwulan village as an Indonesian agro-industry product that is traded commercially.

Methods

Research tools and materials

The tools used to support the implementation of this research are pestle, mortar, oven, desiccator, cup with aluminum cover, analytical balance, beaker glass, spatula, vortex, watch glass, sieve with 6.5 mm diameter hole, spectrophotometer and white paper. The material used in this research is robusta coffee beans, ethanol 95%.

Research Stages

Determination of Coffee Moisture Content

The principle of determining the moisture content of coffee is to dry the sample at 105°C for 16 hours at atmospheric pressure. The test procedure includes: (1) drying the cup and lid at 105 °C ± 1 °C for 1 hour. Cool the cup and lid in a desiccator to room temperature. (2) weighing 10 g of sample and weighing in a cup until evenly distributed. Close the cup and weigh to 0.1 mg accuracy. (3) Place the cup containing the sample in an oven that has been heated at a temperature of 105 C ± 1 C. Open the lid of the cup and place it near the cup. Dry for 16 hours ± 1 hour. Close the cup again and put it in the desiccator. Cool until it reaches room temperature. Then weigh. Perform the test with two replicates of the same snippet. The water content as weight loss is calculated as follows:

$$\frac{(m_1 - m_2)}{(m_1 - m_0)}\ x\ 100\%$$

Note :

m_0 is the weight of the cup and lid (grams)

m_1 is the weight of the cup, lid and sample of coffee before drying (grams)

m_2 is the weight of the cup, lid and coffee samples after drying (grams)

([BSN] National Standardization Agency of Indonesia, 2008)

Determination of Antioxidant Activity (DPPH)

Determination of antioxidant activity using DPPH free radical solution (1,1-diphenyl-2-picrylhydrazyl): 2 mL of sample solution (1:1 v/v sample/ethanol ratio) was added to 2 mL of 0.1 mM DPPH dissolved in 95 % ethanol. The mixture was shaken with a vortex and set aside for 30 minutes at room temperature. The absorbance of the resulting solution will be read at 517 nm. A low absorbance value indicates a higher DPPH scavenging activity. The scavenging effect is accelerated by looking at the results of the calculation of the percentage of inhibition (% inhibition) based on the following formula:

$$\%Inhibition\ = \frac{A_0 - A_s}{A_0}\ x\ 100\%$$

Note: Ao: Absorbance of control (blank)

As: Absorbance of sample

(Shimada et al., 1992)

Value of Defects and Content of Coffee Impurities

The principles of this test are: (1) physical separation of defect seeds and impurities and calculating the value of defects and weighing of impurities, (2) physical separation and weighing of objects that can be classified as impurities. This test was carried out by weighing 300 g of the test sample, including the sample that passed the sieve and spread it on a piece of paper. selecting and separating defect seeds and impurities in the sample. Place them separately in a watch glass or aluminum cup each and calculate the defect value. Impurities in the form of twigs, soil, or stones after calculating the value of defects are collected together with other foreign objects in a container with known weight in advance. Weigh to an accuracy of 0.01 g. If there is more than one type of defect in a coffee bean, only one type of defect is assessed, namely the type that has the heaviest defect value. To simplify the calculation of each snippet,

make a table as in Table 1 and enter the total number of defects in each respective column. The calculation of the impurity content is expressed in % mass fraction using the formula:

$$\frac{Impurity\ weight}{Sample\ weight}\ x\ 100\%$$

([BSN] National Standardization Agency of Indonesia, 2008)

Presentation of Defect Test Results

If there is more than one type of defect in one cup of coffee, then only one type is judged to have the heaviest defect value. To simplify the calculation, each snippet can be made as Table 1 and enter the total number of defects in each respective row. After calculating the value of coffee defects, the coffee quality is classified by referring to Table 2.

Table 1. Example of the form for determining the number of defects

No	Type of Defect	Defect Value	Defect Amount	Amount of Defect Value
1.	1 (one) black bean	1 (one)		
2.	1 (one) black bean partially	½ (half)		
3.	1 (one) broken black bean	½ (half)		
4.	1 (one) coffee cherry	1 (one)		
5.	1 (one) brown bean	¼ (quarter)		
6.	1 (one) big size outer skin	1 (one)		
7.	1 (one) medium size outer skin	½ (half)		
8.	1 (one) small size outer skin	1/5 (fifth)		
9.	1 (one) parchment bean	½ (half)		
10.	1 (one) big size parchment	½ (half)		
11.	1 (one) medium size parchment	1/5 (fifth)		
12.	1 (one) small size parchment	1/10 (tenth)		
13.	1 (one) broken bean	1/5 (fifth)		
14.	1 (one) immature bean	1/5 (fifth)		
15.	1 (one) bean with one hole	1/10 (tenth)		
16.	1 (one) bean with more than one hole	1/5 (fifth)		
17.	1 (one) spotted bean	1/10 (tenth)		
18.	1 (one) large sized twigs, dirt or stones	5 (five)		
19.	1 (one) medium sized twig, soil or stone	2 (two)		
20.	1 (one) small sized twig, soil or stone	1 (one)		

Table 2. Robusta coffee quality classification requirements

Quality	Requirement
Quality 1	The maximum number of defects is 11
Quality 2	Total defect value 12 to 25
Quality 3	Total defect value 26 to 44
Quality 4a	Total defect value 45 to 60
Quality 4b	Total defect value 61 to 80
Quality 5	Total defect value 81 to 150
Quality 6	Total defect value 151 to 225

Cup Test

The taste test refers to the testing standards of the Specialty Coffee Association of America. Parameters tested include aroma, flavor, body, acidity, aftertaste, sweetness, balance, uniformity, clean cup, and overall. The taste parameter scale includes: 6.00 – <7.00 = good; 7.00 – <8.00 = very good; 8.00 – < 9.00 = superior; 9.00 – < 10.00 = excellent; 10 = perfect. Taste testing was carried out by 3 panelists of trained coffee flavor experts (Towaha & Rubiyo, 2016).

Coffee Development Strategy Using SWOT Matrix

The SWOT matrix is a strategy matching tool based on the development of four types of strategies, namely SO Strategy (Strength-Opportunity Strategy), ST Strategy (Strength-Threat Strategy), WO to avoid or reduce the impact of external threats. WO Strategy improves the weakness of the coffee agribusiness system by taking advantage of external opportunities. WT Strategy is a defensive tactic aimed at reducing the weaknesses of the coffee agribusiness system and avoiding external threats. The following are the steps in compiling a SWOT Matrix such as: determine factors affecting the key internal of strengths and weakness of Tanahwulan village coffee agribusiness, determine the external opportunities and threats of Tanahwulan village coffee agribusiness, determine the strengths, weaknesses, opportunities and strategic threats of Tanahwulan village coffee agribusiness, match internal strengths with external opportunities to get SO Strategy, match internal strengths with external threats to get ST Strategy, match internal weaknesses with external opportunities to get WO Strategy and match internal weaknesses with external opportunities to get WT Strategy (Narulita et al., 2014).

SWOT analysis is one of the strategic tools in implementing organizational mitigation that is used to analyze the organization's position both internally and externally (Gurel & Tat, 2017). A SWOT analysis is used to reach a good compatibility between internal and external factors that will direct the company to more easily adapt to the environment (Sammut-Bonnici & Galea, 2017). It must be structured and analyzed in such a way to produce the output as accurate information on the organization's current strategic position (Latief et al., 2021). SWOT analysis is mostly described descriptively which explains the strengths, weaknesses, opportunities and threats of the organization. However, the SWOT analysis must be calculated quantitatively so that the calculation results will determine the position points and place them in the SWOT quadrant which consists of four sides which will place the results of the SWOT analysis in the aggressive, diversified, defensive or turnaround quadrant (Beloborodko et al., 2015).

The positioning strategy will distinguish one organization from another where the position of the organization is usually seen from the characteristics of the organization and can be seen from the output of products or services produced by the organization. Strategy formulation within a company will refer to making the most appropriate strategic decisions for the company in accordance with the analysis carried out previously and become valid information that will be used as a basis for the company in determining the right alternative strategy. These alternative strategies will be meaningful for the company if obtained from a basic analysis that shows the right position of the organization so that each organization will always conduct a study to find out the actual condition of the organization by analyzing existing internal and external factors. This analysis is known as a SWOT analysis (Stength, Weakness, Opportunity, and Treath) (Latief et al., 2021).

Results and Discussion

Moisture Content and Antioxidant Activity (DPPH)

Moisture or water content is defined as a measurement of total water contained in a food product, mostly expressed as a percentage by weight on a wet basis (Zambrano et al., 2019). Moisture content is the amount of water contained in an object, such as soil, rocks, agricultural materials, and so on. Moisture content is widely used in scientific and engineering fields and is expressed in ratios, from 0 (total dry) to the water saturation value where all the pores are filled with water. The value can be volumetric or gravimetric (mass), wet basis or dry basis. About 60-95% of the total weight of food is water. Water component is the most dominant component compared to other food components such as oils, fats, carbohydrates, proteins, salts, minerals, and acids. In food, water can act as a continuous phase in which other substances are dispersed in the form of molecules, colloids or emulsions. Water presence in food is always associated with the quality of the food and as a measure of dry matter or solids. Water in ingredients can be used as an index of stability during storage and a determinant of organoleptic qualities, particularly taste and tenderness (Prasetyo et al., 2020). In this research, the moisture content of robusta coffee of Tanahwulan Village was 11% $\pm$ 0.95. This value is fulfilling the requirement of Indonesian National Standard that stated the maximum value of coffee moisture content is 12.5% ([BSN] National Standardization Agency of Indonesia, 2008). This values also indicates that the drying method of coffee produced by Tanahwulan village performing a good quality.

Table 3. Moisture Content and Antioxidant Activity of Tanahwulan Village Coffee

Sample	Water Content	Antioxidant Activity (DPPH)
Robusta Coffee of Tanahwulan Village	11% $\pm$ 0.95	82.87% $\pm$ 3.08

The antioxidants' role is to neutralise the free radicals in biological cells because the free radicals having a negative impact on living organisms. Antioxidant activity assay using DPPH method have a principal of antioxidant reaction with an organic radical (Munteanu & Apetrei, 2021). The result of analysis of antioxidant activity was 82.87% $\pm$ 3.08 that indicates the high value of activity of antioxidant in the observed coffee sample. This result also support the report which explain that coffee beans and coffee beverages are excellent source of antioxidants, especially polyphenol compounds, which highly participate in the neutralisation of free radicals (Cämmerer & Kroh, 2006; Hudáková et al., 2016). In another report, Robusta green coffee showed a higher antioxidant activity than that of Arabica. However, after light roasting and after dark roasting this difference virtually disappears in which Arabica coffee even exceeds the antioxidant activity of Robusta coffee (Yashin et al., 2013).

Value of Defects and Content of Coffee Impurities

The coffee beans classification consist of three distinct phases: by types and defects, by bean quality (sieve) and by beverage quality. In the classification by types and defects, the coloration and counting of defect beans (intrinsic defects) or impurities (extrinsic defects) contained in a sample of 300 g of beans are evaluated (Brighenti & Cirillo, 2018). In business, the quality detection of coffee bean relies primarily on visual inspection (using human inspector to classify based on the size of the coffee bean). Although nowadays the methods for identifying defect in coffee bean are being developed more sophistically (Ayitenfsu, 2014). The result of defectivity assessment of Tanahwulan robusta coffee is shown on Table 4.

The defect value of Robusta coffee in Tanahwulan village is 239.3. Therefore, based on SNI 01-2907-2008 (requirements for classifying the quality of Robusta coffee based on Indonesian

National Standard), the defect value of Robusta coffee in Tanahwulan Village was classified as random quality. The weight of Impurity of Robusta coffee in Tanahwulan village was 2 grams (from 300 grams of benefited coffee beans).

Table 4. The Result of the Defectivity Assessment of Tanahwulan Robusta Coffee

No	Type of Defect	Defect Value	Defect Amount	Amount of Defect Value
1.	1 (one) black bean	1 (one)	42	42
2.	1 (one) black bean partially	½ (half)	5	2.5
3.	1 (one) broken black bean	½ (half)	11	5.5
4.	1 (one) coffee cherry	1 (one)	0	0
5.	1 (one) brown bean	¼ (quarter)	118	29.5
6.	1 (one) big size outer skin	1 (one)	14	14
7.	1 (one) medium size outer skin	½ (half)	3	1.5
8.	1 (one) small size outer skin	1/5 (fifth)	0	0
9.	1 (one) parchment bean	½ (half)	20	10
10.	1 (one) big size parchment	½ (half)	39	19.5
11.	1 (one) medium size parchment	1/5 (fifth)	19	3.8
12.	1 (one) small size parchment	1/10 (tenth)	71	7.1
13.	1 (one) broken bean	1/5 (fifth)	313	62.6
14.	1 (one) immature bean	1/5 (fifth)	23	4.6
15.	1 (one) bean with one hole	1/10 (tenth)	11	1.1
16.	1 (one) bean with more than one hole	1/5 (fifth)	33	6.6
17.	1 (one) spotted bean	1/10 (tenth)	0	0
18.	1 (one) large sized twigs, dirt or stones	5 (five)	5	25
19.	1 (one) medium sized twig, soil or stone	2 (two)	2	4
20.	1 (one) small sized twig, soil or stone	1 (one)	0	0
Total defect value				239.3

Cup Testing Result

Coffee quality assessment is generally carried out based on the taste analysis method with reference to the Specialty Coffee Association of America (SCAA) standards. In this analysis, panelists identify and assess the sensory attributes of coffee by sipping coffee that has been brewed in the cups provided so that the taste test is also known as cup testing. Sensory attributes assessed in cup testing include aroma, flavor, aftertaste, acidity, body, balance, uniformity, sweetness, clean cup, and overall (Isnidayu et al., 2020). The result of cup testing in this research is shown on Table 5. The dominant characteristic of Tanahwulan village Robusta Coffee are uniform cup and clean cups with cup testing score of 10 for each characteristic, followed by fragrance/aroma, flavor, mouthfeel/body with score of 7.5 for each characteristic. However this sample is not categorized as specialty coffee because the final score of cup testing was lower than 80. The final score of Tanahwulan village Robusta Coffee was 75.5 with notes of coffee namely chocolaty, spicy, dirty, and dark roast.

Table 5. The Result of Cup Testing

Characteristic	Cup Testing Score*
Fragrance/Aroma	7.5
Flavor	7.5

Aftertaste	6.75
Salt/Acid	6.5
Bitter/Sweet	6.5
Mouthfeel/Body	7.5
Uniform Cups	10
Balance	6.5
Clean Cups	10
Overall	6.75
Taints-Faults	0
Final Score**	75.5
Notes: Chocolaty, Spicy, Dirty, Dark Roast	

*Score Notation: 6.00-6.75 = Good; 7.00-7.75 = Very Good; 8.00-8.75 = Excellent; 9.00-9.75 = Outstanding (Score notation)

**Final Score Notation: Minimum Value for Specialty Grade = 80

Development Strategy of Tanahwulan village Robusta Coffee

SWOT analysis has become a basic tool for organizations to evaluate their position in the market and is widely used to analyze the internal and external environment of organizations during times of uncertainty (Benzaghta et al., 2021). Consistent business success rarely comes from luck or chance; it is most often the result of careful planning followed by diligent, smart, hard work. Scanning appropriate external and internal sources of information is essential (Forest et al., 2021).

Table 6. Analysis of Internal and External Strategy Factors for People's Robusta Coffee Farming in Tanahwulan village

Internal Strategy Factors			
Strength (S)		Weakness (W)	
Land Availability	S_1	Low Farmer Bargaining Position	W_1
Good Cultivation Technique	S_2	Use of Traditional Tools	W_2
Production above standard	S_3	Low Seed Quality	W_3
Capital	S_4	Pest and Disease Control	W_4
Marketing	S_5		
Internal Strategy Factors			
Opportunities (O)		Threat (T)	
Existence of Nature/Agroclimate Suitable for Coffee Development	O_1	Weather Anomaly	T_1
		Market competition	T_2
Government support	O_2	Coffee Price Fluctuations	T_3
Group Support	O_3		
High Consumer Trust	O_4		
Availability of Transportation Facilities	O_5		
Development of Information and Communication Technology	O_6		

Table 7. Final Score of IFAS and EFAS

IFAS		EFAS	
Category	Score	Category	Score
Strengths (S)	2,26	Opportunities (O)	2,4
Weaknesses (W)	1,03	Threaths (T)	0,82

Analysis of Strategic is an important action in the design, construction and selection of effective business strategy (Sandybayev & Derkan, 2015). In order to improve Tanahwulan village coffee in the future, it is necessary to develop a good development strategy by comparing existing internal and external factors so that a better situation can be obtained in a longer period of time. Internal Factor Analysis System (IFAS) and External Factor Analysis System (EFAS) are frequently used to identify the strategy to support the development of an organization based on the combination of evaluation strategies that exist with the highest to lowest value (Rachmawati et al., 2019). From the results of the IFAS and EFAS matrices, it is known that the final IFAS score was 1,23 and the total EFAS final score was 1,58. When compared with the IFAS value, the EFAS value was larger than the IFAS value. This means that changes in external factors have a high level of attractiveness to the business development of Tanahwulan village Robusta Coffee. The results of IFAS and EFAS were then shown through the SWOT matrix on Figure 1.

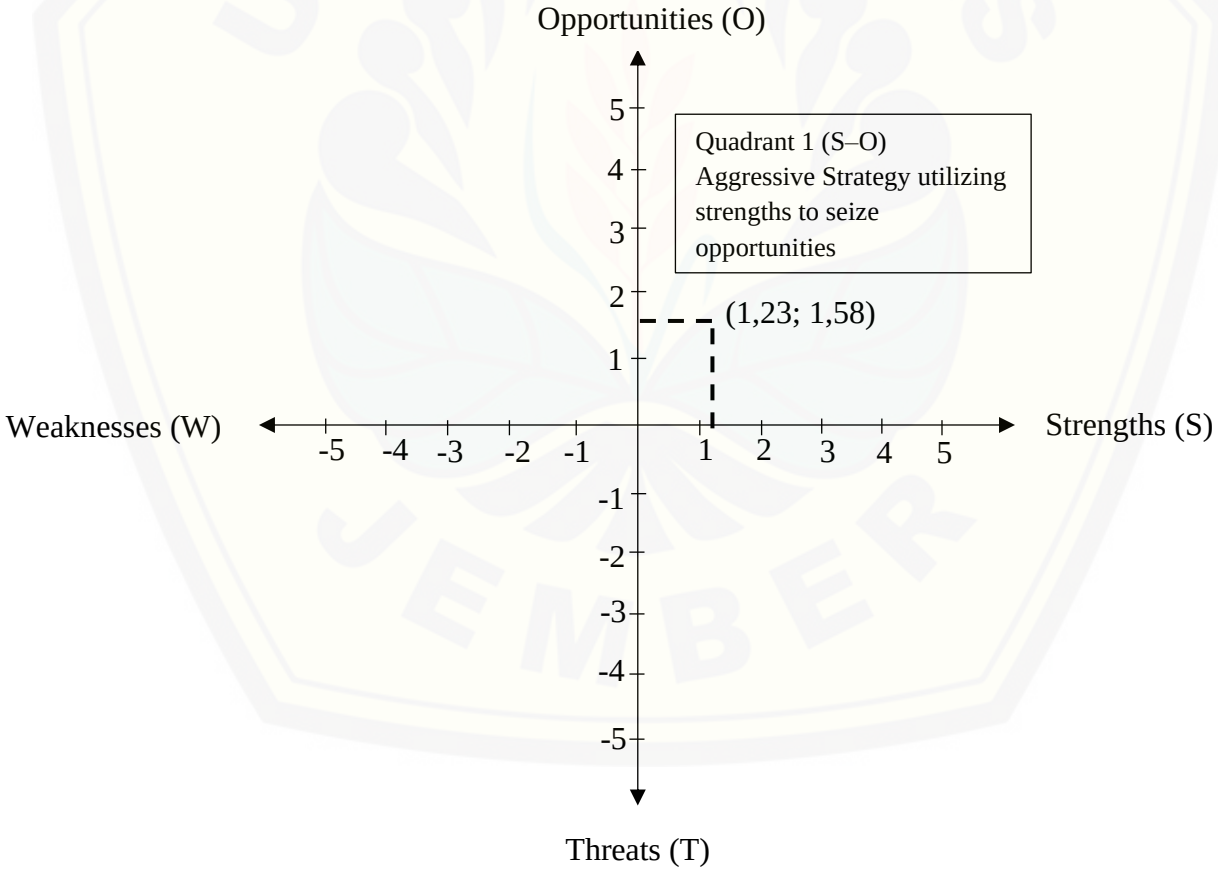

Figure 1. Tanahwulan village Robusta Coffee Position Based on SWOT Matrix of IFAS and EFAS

The figure 1 shows that the x-axis and y-axis has a positive and positive value, so the position of the organization on the diagram lies in quadrant I (aggressive position). The company can adopt the strategy that supports the aggressive strategy, if the SWOT diagram result shows the company position in the quadrant I (one) (Rangkuti, 2014). The first quadrant means the

market strengths and opportunities of organizarion. Organization in this quadrant can use their strengths to adopt strategies to form competitive forces (Rende et al., 2019). Thus, this position signifies a strong and potential organization..The recommendation given was shown on Table 8. Based on the SWOT analysis, the strategic plan that could be applied to increase the quality of Tanahwulan village robusta coffee (strategy of S-O) are: (1) Applying good robusta coffee cultivation techniques (Good Agricultural Practices) by utilizing the availability of land and a supportive agro-climate, (2) Increase the production and quality of robusta coffee through good group support and government support. This adequate support will strengthen the quality and production capacity of Robusta coffee in the future, (3) Facilitate and stimulate investment in building a coffee-based industry and its derivative products, (4) Produce quality and distinctive coffee products and their derivatives so as to increase consumer satisfaction and trust, (5) Develop networking in the agribusiness system and robusta coffee marketing by utilizing the latest information and communication technology, and (6) Always carry out updates and innovations in the cultivation and post-harvest processing of robusta coffee.

Table 8. Strategic Plan Based on SWOT Analysis Results

External Factors / Internal Factors	Opportunities					
	Presence of Nature/Agrocl imate Suitable Coffee for Development	Government support	Group support	High consumer confidence	Availability of means of transportation	The development of information and communicatio
	1	2	3	4	5	6
Strengths	Strategies of S-O (Strength-Opportunity)					
Land availability Good cultivation technique Production above standard Capital Marketing	1. Applying good robusta coffee cultivation techniques (Good Agricultural Practices) by utilizing the availability of land and a supportive agro-climate. 2. Increase the production and quality of robusta coffee through good group support and government support. This adequate support will strengthen the quality and production capacity of Robusta coffee in the future. 3. Facilitate and stimulate investment in building a coffee-based industry and its derivative products. 4. Produce quality and distinctive coffee products and their derivatives so as to increase consumer satisfaction and trust. 5. Develop networking in the agribusiness system and robusta coffee marketing by utilizing the latest information and communication technology. 6. Always carry out updates and innovations in the cultivation and post-harvest processing of robusta coffee					

Practical Implication of Study

This study will give information regarding the defect value of people's robusta coffee bean in Tanahwulan village since this business is potential to be traded commercially. Application of defect analysis is important in order to improve the quality of coffee bean that fulfil the standard requirements during operation of this business project. The development strategy analysis is

also crucial to be observed since this business is projected to be succeed for long term period. Based on this study, the Tanahwulan village Robusta coffee is prospective to enter the business worldwide with some improvement on its process handling from farming to postharvest and its business strategy for its positioning in the market.

Conclusion

The value of coffee quality defects was at the level of random quality. The types of defects in coffee beans were black bean, partially black bean, broken black bean, brown bean, big size outer skin, medium size outer skin, parchment bean, big size parchment, medium size parchment, small size parchment, broken bean, immature bean, bean with one hole, bean with more than one hole, large sized twigs, dirt or stones and followed by medium sized twigs, dirt or stones. However, the types of defects such as coffee cherry, small size outer skin, spotted bean and small sized twigs, dirt or stones were not found in Robusta coffee of Tanahwulan village. The water content of ground coffee was 11% and the antioxidant activity was 82.87%. The cup testing result of brewed coffee has a final value of 75.5 with notes namely chocolaty, spicy, dirty, and dark roast. Due to the final score of cup testing which was under 80, thus this coffee was not categorized as specialty coffee These results indicate the need to implement standard operating procedures to improve coffee quality in Tanahwulan Village. In order to prove the quality of Tanahwulan village robusta coffee, based on SWOT Analysis, it is necessary to apply aggressive strategy or SO strategy. Therefore, this commodity could empower the opportunities to exist.

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