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The Influence of Raw Material Quality and Production Process on Product Quality in Rigis Village Coffee Powder Brand Coffee Business in West Lampung Regency

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Abstract

This research aims to examine and analyze the influence of raw material quality and production process on product quality in the Rigis brand coffee powder business in Kampung Kopi, West Lampung Regency. Raw material quality, primarily referring to the quality of coffee beans used in production, is considered a key factor in shaping the distinctive characteristics of coffee powder. Additionally, the production process involving various stages, such as roasting and grinding, is also believed to play a significant role in determining the final product quality. This case study is conducted to provide a deeper understanding of the interaction between raw material quality, production process, and product quality in the local coffee industry. The research method involves surveys with data collection through questionnaires and interviews with business owners and relevant stakeholders. Data analysis is conducted using regression techniques to test the influence of raw material quality and production process on the product quality of Rigis brand coffee powder. The results of this study indicate an influence of both raw material quality and production process on product quality.

Keywords: Raw Material Quality; Production Process; Product Quality; Ground Coffee

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INTRODUCTION

Alongside the growth of the coffee industry in Indonesia, particularly in the coffee powder business, product quality has become a critical factor in maintaining market competitiveness (Puspita, 2023). One of the brands that stands out is the Rigis brand coffee powder, produced in Coffee Village in West Lampung Regency. In this context, this research aims to investigate the influence of raw material quality and production process on product quality in the Rigis brand coffee powder business. Raw material quality is a key element in ensuring satisfactory end results (Fernandez et al., 2015). Carefully selected coffee beans and meticulous selection processes can lay the foundation for producing high-quality coffee powder (Sejati, 2021). However, besides raw material quality, the production process also plays a significant role in shaping the taste and aroma of coffee. Therefore, a profound understanding of the relationship between raw material quality, production process, and product quality in the Rigis coffee powder business in Coffee Village is crucial (Fallahnezhad & Qazvini, 2016).

Table 1. Rigis Jaya Ground Coffee Production Target 2019 - 2022

No	Year	Production Target	Achieved Production
1.	2019	5.000	5.000
2.	2020	5.000	3.700
3.	2021	5.000	4.000
4.	2022	5.000	3.300

Source: Rigis Jaya Coffee Village, 2023

From the table, it can be shown that the production volume of Coffee Village coffee powder from 2020 to 2022 did not meet the target. This can occur due to several factors, such as the presence of a significant amount of coffee raw materials that do not comply with the established SOP for Rigis Coffee, resulting in sorting issues, inadequate production equipment, and suboptimal procedures, thereby failing to achieve the targeted quantity of coffee powder products each year.

LITERATURE REVIEW

The quality of raw materials refers to the extent to which a material or component used in the production process or manufacturing of a product meets the established standards and specifications (Sentosa & Trianti, 2017). This includes aspects such as cleanliness, completeness, suitability, and other physical or chemical characteristics that

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can affect the final product outcome. The quality of raw materials is crucial in determining the quality of the final product, as good raw materials tend to result in better products. In the industrial context, the quality of raw materials includes evaluations of purity, accuracy of size, levels of damage or defects, and compliance with applicable technical standards (Zulyanti, 2016). The quality of raw materials can also be influenced by factors such as collection methods, storage, and transportation. Selecting good raw materials that meet specifications is a critical initial step in ensuring the success of the production process and creating final products that meet consumer expectations (Herawati & Dewi, 2016).

The production process refers to a series of steps or activities undertaken to transform raw materials or inputs into products or services that can be used or sold (Tri et al., 2017). It involves several well-organized stages, starting from planning, procurement of raw materials, processing, to distributing the final products to the market or consumers. The production process may vary depending on the type of industry, the products produced, and the technology used (Pratiwi & Sugiyarti, 2022). In the manufacturing context, the production process may involve steps such as product design, production planning, raw material procurement, processing or assembly, quality testing, and packaging. In the service sector, the production process may involve planning and providing services, such as in banking, education, or healthcare industries (Yudhantara, 2016).

Product quality refers to the extent to which a product meets or exceeds the expectations, standards, or specifications set by the manufacturer and expected by consumers (Rahel et al., 2020). This encompasses a number of characteristics or attributes that enable a product to provide added value and satisfy the needs or desires of users. Product quality can be seen from various aspects, including design, reliability, performance, durability, ease of use, and safety. The importance of product quality lies in its ability to meet consumer expectations and provide maximum satisfaction (Divya, 2017). Products with high quality typically build customer trust, enhance brand loyalty, and support the company's reputation. Conversely, products with low quality can negatively impact consumer trust, lead to complaints, and damage brand image (Windarti & Ibrahim, 2017).

RESEARCH METHODS

Quantitative research is a research method that employs a quantitative approach in data collection, analysis, and interpretation. This method is typically used to examine

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phenomena that can be measured quantitatively, and is carried out by collecting data from a specific population or sample. The quantitative approach is based on positivist philosophy, which holds that knowledge can be obtained through objective empirical observation and testing (Sugiyono, 2019). Quantitative research is a type of research method used to test theories or hypotheses by measuring specific variables and analyzing the relationships between these variables. Quantitative research typically involves collecting measurable data in the form of numbers or statistics, and applying statistical analysis techniques to test hypotheses (Hardani et al., 2020).

RESULTS AND DISCUSSION

Table 2. Respondents Based on Gender

Gender	Amount	Presentation
Male	19	63%
Female	11	37%
Totally	30	100%

Source: data processed by researchers, 2024

Table 2 depicts the distribution of respondents based on gender in this study. Out of a total of 30 respondents involved, the majority are males, numbering 19 individuals (63%), while females comprise 11 respondents (37%).

Table 3. Respondents Based on Age

Age	Amount	Presentation
17 – 25 Years	**10**	**33,3 %**
26 – 35 Years	**10**	**33,3%**
36 – 45 Years	**8**	**26,7%**
> 46 Years	**2**	**6,7%**
Totally	**30**	**100%**

Source: data processed by researchers, 2024

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Table 3 illustrates the distribution of respondents based on age groups in this study. Out of a total of 30 respondents, the majority of respondents are in the age range of 17-25 years, comprising 10 individuals (33.3%), followed by the age group of 26-35 years, also with 10 individuals (33.3%). Meanwhile, the 36-45 age group covers 8 individuals (26.7%), and the age group >46 years includes 2 individuals (6.7%).

Table 4. Respondents Based on Revenue

Revenue	Amount	Presentation
< 1 Million	3	10%
1 – 3 Million	23	76,7
3 – 5 Million	4	13,3%
Totally	30	100%

Source: data processed by researchers, 2024

Table 4 provides an overview of the distribution of respondents based on income in this study. Out of a total of 30 respondents, the majority have a monthly income of 1-3 million, comprising 23 individuals (76.7%), while those with income < 1 million are 3 individuals (10%), and those with income 3-5 million are 4 individuals (13.3%).

Table 5. Validity Test Results Quality Of Raw Materials (X1)

Variable	Indicator	Rcount	Sig	Rtable	Description
QUALITY OF RAW MATERIALS (X1)	X1.1	.542**	.002	.361	Valid
	X1.2	.616**	<.001	.361	Valid
	X1.3	.549**	.002	.361	Valid
	X1.4	.546**	.002	.361	Valid
	X1.5	.508**	.004	.361	Valid
	X1.6	.514**	.004	.361	Valid
	X1.7	.622**	<.001	.361	Valid
	X1.8	.559**	.001	.361	Valid
	X1.9	.600**	<.001	.361	Valid
	X1.10	.582**	<.001	.361	Valid

Source: Author's data, 2024

The results of the validity test indicate that for each tested indicator, the value of r (calculated correlation coefficient) is greater than r (critical value). Therefore, it can be concluded that all items of raw material quality are statistically valid because the high r value indicates that there are no items that need to be eliminated.

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Table 6. Validity Test Results Production Process (X2)

Variable	Indicator	Rcount	Sig	Rtable	Description
PRODUCTION PROCESS (X2)	X2.1	.667**	<.001	.361	Valid
	X2.2	.712**	<.001	.361	Valid
	X2.3	.652**	<.001	.361	Valid
	X2.4	.650**	<.001	.361	Valid
	X2.5	.691**	<.001	.361	Valid
	X2.6	.669**	<.001	.361	Valid
	X2.7	.652**	<.001	.361	Valid
	X2.8	.518**	.003	.361	Valid
	X2.9	.690**	<.001	.361	Valid
	X2.10	.675**	<.001	.361	Valid

Source: Author's data, 2024

The results of the validity test indicate that for each indicator tested, the calculated correlation coefficient (r) is greater than the critical value (r table). Therefore, it can be concluded that all items of the production process are statistically valid because the high calculated correlation coefficient indicates that there are no items that need to be eliminated.

Table 7. Validity Test Results Product Quality (Y)

Variable	Indicator	Rcount	Sig	Rtable	Description
PRODUCT QUALITY (Y)	Y.1	.602**	<.001	.361	Valid
	Y.2	.567**	.001	.361	Valid
	Y.3	.595**	<.001	.361	Valid
	Y.4	.561**	.001	.361	Valid
	Y.5	.541**	.002	.361	Valid
	Y.6	.668**	<.001	.361	Valid
	Y.7	.588**	<.001	.361	Valid
	Y.8	.543**	.002	.361	Valid
	Y.9	.596**	<.001	.361	Valid
	Y.10	.510**	.004	.361	Valid

Source: Author's data, 2024

The validity test results indicate that for each indicator tested, the calculated correlation coefficient (r) is greater than the critical value (r table). Therefore, it can be concluded that all items of competitive advantage are statistically valid because the high calculated correlation coefficient indicates that there are no items that need to be eliminated.

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Table 8. Reliability Test Results

Variable	*Cronbach's Alpha*	Critical Value	Description
Raw Material Quality (X1)	.754	0,60	Reliable
Production Process(X2)	.852	0,60	Reliable
Product Quality (X3)	.773	0,60	Reliable

Source: Author's data, 2024

Table 8 shows the results of the Reliability Test for variable X1, with a Cronbach's Alpha value of .754, variable X2, with a Cronbach's Alpha value of .852, and variable Y, with a Cronbach's Alpha value of .773. Cronbach's Alpha values approaching or exceeding .60 are generally considered indicators of high reliability in measurement instruments.

Table 9. Normality Test Results

One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			30
Normal Parameters[a,b]	Mean		.0000000
	Std. Deviation		2.22667901
Most Extreme Differences	Absolute		.085
	Positive		.085
	Negative		-.057
Test Statistic			.085
Asymp. Sig. (2-tailed)[c]			.200[d]
Monte Carlo Sig. (2-tailed)[e]	Sig.		.832
	99% Confidence Interval	Lower Bound	.822
		Upper Bound	.841

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.
e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

Source: Data management with SPSS 29, 2024

In the basic test of normality, the decision-making criterion is if the sig value > .05, then the conclusion is that the data is normally distributed. In this study, the sig value is .200 > .05, hence the data for this study can be categorized as normal.

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Table 10. Multicollinearity Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	7.941	3.582		2.217	.035		
	X1	.625	.160	.605	3.900	<,001	.291	3.440
	X2	.260	.122	.329	2.121	.043	.291	3.440

a. Dependent Variable: X3

Source: Data management with SPSS 29, 2024

In the basic test of multicollinearity, the decision-making criterion is if the VIF value < 10 and the Tolerance value > .10, then it can be concluded that the data does not exhibit multicollinearity. In this study, the VIF value is 3.440 < 10 and the Tolerance value is .291 > .10, thus it can be concluded that there is no multicollinearity present.

Table 11. Heteroscedasticity Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.168	2.002		1.582	.125
	X1	-.079	.090	-.309	-.877	.388
	X2	.047	.068	.242	.687	.498

a. Dependent Variable: ABSRES

Source: Data management with SPSS 29, 2024

From the heteroskedasticity test, it is found that if the significance value (sig) > .005, then there is no heteroskedasticity in the data.

Table 12. Autocorrelation Test Results

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.900[a]	.811	.797	2.308	2.076

a. Predictors: (Constant), X2, X1

b. Dependent Variable: X3

Source: Data management with SPSS 29, 2024

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dU < dw < 4 – dU

= 1,566 < 2,076 < 4 – Du

= 1,566 < 2,076 < 2,434

In this research model, there is no autocorrelation as the calculated Durbin-Watson (DW) value falls between dU and 4 - dU.

Table 13. Multiple Linear Regression Analysis

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	7.941	3.582		2.217	.035		
	X1	.625	.160	.605	3.900	<,001	.291	3.440
	X2	.260	.122	.329	2.121	.043	.291	3.440

a. Dependent Variable: X3

Source: Data management with SPSS 29, 2024

From the table above, the equation formed is Y = 7.941 + 0.625X1 + 0.260X2

Table 14. t Test Result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	7.941	3.582		2.217	.035		
	X1	.625	.160	.605	3.900	<,001	.291	3.440
	X2	.260	.122	.329	2.121	.043	.291	3.440

a. Dependent Variable: X3

Source: Data management with SPSS 29, 2024

In the basic T-test analysis, the decision-making criterion is if the significance value (sig) < .05 and the calculated T value (T-test) > T-table, then it can be concluded that there is an influence between one variable and another. In this study, for the variable "quality of raw materials," the significance value is < .001 < .05, and the T-test value is 3.900 < 2.048. Therefore, it can be concluded that variable X1 has an influence on Y. As for the variable "production process," the significance value is .000 < .05, and the T-test value is 2.121 > T-table 2.048, thus it can be concluded that variable X2 has an influence on Y.

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Table 15. f Test Result

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	616.215	2	308.108	57.857	<,001[b]
	Residual	143.785	27	5.325		
	Total	760.000	29			

a. Dependent Variable: X3

b. Predictors: (Constant), X2, X1

Source: Data management with SPSS 29, 2024

From the results of the F-test, it was found that the significance value (sig) is < .001 < .05. Thus, with an F-value of 57.857 > F-table 3.34, it can be concluded that there is an influence between variables X1 and X2 on variable Y.

Table 16. Coefficient Of Determination

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.900[a]	.811	.797	2.308

a. Predictors: (Constant), X2, X1

b. Dependent Variable: X3

Source: Data management with SPSS 29, 2024

In the determination test results, it was found that the influence of X1 and X2 on Y is 0.811 or 81.1%. The remaining 18.9% is explained by other factors.

CONCLUSION

From the results obtained, the conclusion is obtained, namely:

1. Partially, Raw Material Quality has a positive influence on Product Quality in Rigis Jaya Coffee Village Business. This can be reinforced by the fact that the t-value is 3.900 > the t-table 2.048. Furthermore, the regression coefficient shows a positive value of 0.625.
2. Partially, the Production Process has a positive influence on Product Quality in Rigis Jaya Coffee Village Business. This can be reinforced by the fact that the t-value is

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2.121 > the t-table 2.048. Furthermore, the regression coefficient shows a positive value of 0.260.

3. Together, both Raw Material Quality and Production Process have a positive influence on Product Quality in Rigis Jaya Coffee Village Business. This can be evidenced by the results of the ANOVA test, where the calculated F-value is 57.857 > the F-table 3.34. Additionally, the coefficient of determination in this study indicates that the variables of Raw Material Quality and Production Process can explain the purchase decision variable by 8.11%.

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