The Effect of Innovation and Product Quality on Consumer Satisfaction In Coconut Charcoal Products CV. Superior Agro

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Abstract

This study is motivated by the use of energy that is used continuously every time will result in the depletion of the energy. Coconut charcoal can be an alternative solution to replace the role of non-renewable energy. CV. Superior Agro as one of the producers of coconut charcoal. The problem discussed in this article is the decline in sales from January to December 2021 due to a decrease in consumer satisfaction with CV. coconut charcoal products. Superior Agro. This study was conducted to analyze how much influence innovation and product quality have on consumer satisfaction on CV coconut charcoal products. Superior Agro.
The object of this research is a coconut charcoal product CV. Superior Agro. This study uses associative and descriptive methods with a quantitative approach, namely research that aims to determine the effect between two or more variables, with quantitative research in the form of description using numbers or numerical (statistics). The number of samples obtained from calculations using the solvin formula is 72.75 and is rounded up to 73 samples.
Based on the analysis using SPSS, respondents' responses regarding innovation have the highest score, which is 3.78. Respondents' responses regarding product quality have the highest score of 3.88. Meanwhile, respondents' responses regarding customer satisfaction have the highest value, namely 3.68.
The result is known that the variables of Product Quality and Innovation have a significant influence together on the Consumer Satisfaction variable. These results are supported by the results of research and tests that have been carried out.

Keywords: coconut charcoal**,** energy**,** innovation, product quality, and consumer satisfaction

1. Introduction

Currently, the development of the energy sector in Indonesia has experienced a significant increase, this causes the energy reserves that we have will eventually run out or are few, because they cannot be renewed. It is necessary to replace the energy reserves and coconut charcoal can be an alternative solution. CV. Superior Agro is a company engaged in the manufacture of coconut charcoal. It has many regular suppliers who come from several areas in West Java such as Pangandaran, Tasikmalaya and Garut. Coconut charcoal is often used in various lines, one example being restaurants, grilled chicken, chicken satay and so on. Not only culinary actors need coconut charcoal, many factories also want coconut charcoal, one of which is coconut charcoal briquettes which are much needed. According to CV. Superior Agro sales of coconut charcoal from July to December 2021 decreased. This can be caused by a decrease in consumer satisfaction with the product. The results of the pre-survey conducted by the researcher stated that the total percentage who answered no to the innovation statement was 60.625% and the total percentage yes to the innovation statement was 39.375%. The researcher concludes that the results of the pre-survey for innovation have unsatisfactory results for the respondents. The product quality variable is based on 20 respondents who answered the statement. It was concluded that the total percentage yes was 42.50% and for the percentage no it was 57.5%. The consumer satisfaction variable survey has a statement that is not approved by the respondents. The total data obtained from the survey results of respondents who answered yes were 44% of people

and for respondents who answered no was 56%. Because the indicators made some of them are not in accordance with the expectations of the respondents, it shows a problem. Based on this description, the effect of innovation and product quality on consumer satisfaction at CV. Superior Agro is important to study because apart from innovation, product quality is also very important for the operation of a business. Product quality According to Kotler and Keller "product quality is the totality of features and characteristics of a product or service that depend on its ability to satisfy stated or implied needs" (Ristanto and Aditya 2021). If the product made by a company does not look at the quality side, then the product will likely not last very long.

2. Literature Review

According to Firmansyah (2020: 3) "marketing is all efforts made in providing goods for the market, from formulating products to promoting these products to the public". The American Marketing Association (AMA) defines "Marketing is an organizational function and a set of processes for creating, communicating, and delivering value to customers and for managing customer relationships in ways that benefit the organization and its stakeholders" (Agustina 2020:6). From the previous explanation about marketing, it can be concluded that marketing is a social process between individuals or groups that have value for the market and then offered to the market with the aim of fulfilling desires and making profits.

2.1 Innovation

Innovation is "an idea, practical things, methods, methods, man-made items, which are observed or perceived as new for a person or group of people or society" (Sutirna 2019). Innovation is something new for a person or group of people (society). In general, “innovation is a process and/or result of developing the use of a product/resource that has existed before, so that it has more meaningful value” (Rofaida et al. 2020). According to Suryana, “innovation is the ability to apply creativity into something that can be implemented and provides added value to the available resources. Innovation is the emergence of something new, for example in the form of a new idea, a new theory, a new hypothesis, or a new method for the management of an organization and business. (Septiani 2019). Based on the three theories above, it can be concluded that innovation is a new idea from something that previously existed to be more valuable than before. Innovation itself can be a movement or step taken by the company in responding to, and seeing the competition in the line of business run by the company.

2.2 Product Quality

According to Kotler and Armstrong "Product quality is the ability of a product to perform its function, this includes overall durability, reliability, accuracy, ease of operation, and product repair as well as other product attributes" (Freekley 2018). Product quality is the ability of the product to satisfy the integrity or desire of the customer. Product quality must also be determined by the way customers perceive the product (Ristanto and Aditya 2021). According to Maria & Anshori “product quality is one of the factors that influence consumer satisfaction. Product quality is determined by a set of uses and functions, including performance/performance, durability, conformance to specifications, product aesthetics, and also perceived quality/product impression.” (Imron 2019). From the three explanations above, it can be concluded that the way a product shows its capabilities must be proven by the customer/consumer itself. The quality of this product should be checked regularly by experts, both within the company and outside the company. Its function is so that product quality is always maintained and does not violate the rules or standards set by the company that produces, employs and sells goods or services.

2.3 Consumer Satisfaction

The level of satisfaction of a person is different, so the company is required to determine the level that must be achieved by the company for customer satisfaction. Kotler and Keller stated that "Satisfaction is a person's feeling of pleasure or disappointment that arises after comparing the performance (outcome) of the product thought to the expected performance" (Apriyani and Sunarti 2017). According to Tjiptono, consumer satisfaction is a situation shown by consumers when they realize that their needs and desires are as expected and well fulfilled (Apriyani and Sunarti 2017). According to Rangkuti, "consumer satisfaction is a response or reaction to a discrepancy between the previous level of interest and the actual performance felt after use or use" (Apriyani and Sunarti 2017). Based on the three opinions above, consumer satisfaction is a response given by consumers after making a purchase because they already have or use a product or service. Consumer satisfaction requires companies to move forward in accordance with market desires. The longer after customer satisfaction is met, a new standard of satisfaction will appear that the company must pay attention to. in fact humans will not be completely satisfied if they see a new product or innovation.

3. Methods

This study uses associative and descriptive research methods with a quantitative approach. SPSS is used for data processing and hypothesis testing. This research was conducted on consumers CV. Superior Agro located in Cicalengka, Bandung Regency, Indonesia. The total average population of consumers from December 2021 to February 2022 is 267 populations. The samples obtained were 73 samples using the solvin formula.

4. Results and Discussion

The sample in this study were 73 respondents who were consumers at CV. Superior Agro. General characteristics data collection is done by distributing questionnaires directly to consumers CV. Superior Agro, respondents are divided into several characteristics, namely:

Table 1 : Characteristics of Respondents

Data	**Frequency**	**Percentage (%)**
Gender		
Man	65	89%
Women	8	11%
Age		
<20	9	12,30%
21-30	18	24,70%
30-40	36	49,30%
>41	10	13,70%
Work		
Businessman	50	68,50%
State Officer	14	19,20%
Private Officer	7	9,60%
Other	2	2,70%
Income		
<2	12	16,40%
2-5	21	28,80%
5-10	22	30,10%
>10	18	24,70%
Residence		
Bandung City	22	30,10%
Bandung Regency	30	41,10%
Other	21	28,80%

Source: Questionnaire

In table 1 based on gender, the results are 89% male and 11% female. Based on age, the most respondents were 30-40 years old with 49.30% and the least respondents were <20 years old. Based on occupation, the entrepreneur has the highest score of 50 with a percentage of 68.50% compared to other occupations. Based on the place of residence, consumers from Bandung district have the highest percentage, namely 30 with a value of 41.10%.

4.1 Validity Test

"Validity is a measure that shows the level of validity of the instrument" (Ernita and Sudjiman 2021). The validity test is used to measure the accuracy of the research instrument to measure the variables of Innovation, Product Quality, and Consumer Satisfaction for each statement item. “Validitas adalah suatu ukuran yang menunjukkan tingkat kevalidan pada instrumen” (Ernita and Sudjiman 2021).

Table 2 : Validity test

Question Items	**r-square**	**r- table**	Information
(Innovation)			
P1	0,393	0,194	Valid
P2	0,598	0,194	Valid
P3	0,513	0,194	Valid

Question Items	**r-square**	**r- table**	Information
(Innovation)			
P4	0,373	0,194	Valid
P5	0,275	0,194	Valid
P6	0,280	0,194	Valid
(Product quality)			
P9	0,588	0,194	Valid
P10	0,623	0,194	Valid
P11	0,599	0,194	Valid
P12	0,577	0,194	Valid
P14	0,602	0,194	Valid
P15	0,593	0,194	Valid
P16	0,518	0,194	Valid
(Consumer Satisfaction)			
P17	0,699	0,194	Valid
P18	0,612	0,194	Valid
P19	0,638	0,194	Valid
P20	0,595	0,194	Valid
P21	0,551	0,194	Valid

Source: SPSS

The results of the validity test for Innovation, consumer satisfaction, and product quality in question items P1-P21 are declared valid because they have a t-count value greater than t-table, except for the 13th question item which is invalid because it has an r-count value smaller than the value r-table (0.194). so that question items other than the 13th question item can be used.

4.2 Reliability Test

"Reliability testing is used to determine the consistency of the measuring instrument, whether the measuring instrument used is reliable and remains consistent if the measurement is repeated" (Yusup 2018).

Table 3 : Reliability Test

Variable	**Cronbach's Alpha**	**Information**
Innovation	0,605	Reliable
Product quality	0,750	Reliable
Consumer Satisfaction	0,767	Reliable

Source: SPSS

In the results of the reliability test, Innovation got a score of 0.605, Product Quality got a value of 0.750, and consumer satisfaction got a value of 0.750 which was declared Reliable. If this value is compared with the stipulated provisions, namely Cronbach's Alpha > 0.6 or greater than the stipulated provisions. then the reliability test results for Innovation, Product Quality and Consumer Satisfaction can be declared reliable.

4.3 Classic Assumption Test

Classical Assumption Test is an analysis carried out to assess whether in an OLS linear regression model there are classical assumption problems (Mardiatmoko, 2020:334). Classical assumption test is a statistical test requirement that must be performed on linear regression analysis, the analysis is not based on OLS, so it does not require classical assumption requirements, for example logistic regression or ordinal regression.

A. Normality Test

"The normality test is to test whether in the regression model, the independent variable and the dependent variable both have a normal distribution or not. A good regression model should have graphical analysis and statistical tests" (Ahmaddien and Syarkani 2019).

Table 4 : Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		73
Normal Parameters[a,b]	Mean	0,0000000
	Std. Deviation	1,81829975
Most Extreme Differences	Absolute	0,065
	Positive	0,039
	Negative	-0,065
Test Statistic		0,065

Source: SPSS

Based on the results of the normality test in this study, it is known that the value of sig. is 0.200 with a provision value of 0.05. If the significant value is compared with the provisions for the normality value, the value is 0.2 > 0.05 (greater). It can be concluded that the variables of Innovation, Product Quality, and Consumer Satisfaction are normally distributed.

B. Multicollinearity Test

"The multicollinearity test aims to test whether the regression model found a correlation between independent variables" (Rachman 2018b). This multicollinearity test is part of the classical assumption test that functions to determine whether or not there is a correlation value in each of the independent variables in multiple regression.

Table 5 : Multicollinearity Test

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	INNOVATION	0,574	1,743
	PRODUCT QUALITY	0,574	1,743

Source: SPSS

According to the table above, the multiple regression model does not show multicollinearity or perfect correlation between the independent variables. For Innovation itself has a tolerance value of 0.574>0.1 and VIF 1.743<10 and for Product Quality itself has a tolerance value of 0.574>0.1 and VIF 1.743<10.

C. Heteroskedasticity Test

Heteroscedasticity is a condition in which in the regression model there is an inequality of variance from the residuals from one observation to another" (Imron 2019). Heteroscedasticity is used to see whether the research conducted does not equalize the variance from one observation to the next observation. It is also recognized that effective research does not produce Heteroskedasticity Test studies.

Table 6 : Heteroskedasticity Test

Correlations

		INNOVATION	PRODUCT QUALITY	Unstandardized Residual
INNOVATION	Pearson Correlation	1	.653**	0,000
	Sig. (2-tailed)		0,000	1,000
	N	73	73	73
PRODUCT QUALITY	Pearson Correlation	.653**	1	0,000
	Sig. (2-tailed)	0,000		1,000
	N	73	73	73
Unstandardized Residual	Pearson Correlation	0,000	0,000	1
	Sig. (2-tailed)	1,000	1,000	
	N	73	73	73

Source: SPSS

The results of the heteroscedasticity test using spss for the Innovation variable itself have a Sig value. 2-tailed of 1,000 > 0.05 (greater) and the Innovation variable has a value of Sig. 2-tailed by 1,000 > 0.05 (greater). It can be

concluded that for all existing variables there is no symptom of heterokadasticity, because it has a significance value greater than 0.05.

4.4 Hypothesis Testing

Sugiyono revealed that "the hypothesis is a temporary conjecture to find out the truth, it is necessary to test the existing hypothesis" (Ahmaddien and Syarkani, 2019:64). The hypothesis used is the hypothesis simultaneously (F test) and partially (t test).

A. Simultaneous Test (Test F)

This F test is used to determine whether or not there is a simultaneous effect of the independent variable on the dependent variable. By comparing the calculated F value with the F table at a 5% confidence level and the degree of freedom df = (n-k-1) where n is the number of respondents and k is the number of variables (Ahmaddien and Syarkani 2019).

Table 7 : SimultaneousTest (Test F)

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	294,281	2	147,141	43,268	.000[b]
	Residual	238,047	70	3,401		
	Total	532,329	72			

Source: SPSS

The results obtained from the simultaneous test in this study obtained a value of 43,286 and the value of the F table itself was 3,129. then compared F count with F table that is 43,286 > 3,129, it can be stated that H_0 is rejected (H_1 is accepted) meaning that the Innovation and Product Quality Variables have a significant influence together on the Consumer Satisfaction variable.

B. Partial Test (Test t)

The partial test or t test is a partial regression coefficient test, this test is carried out to determine the importance of the partial role between the independent variable and the dependent variable by assuming that the other independent variables are considered constant. (Ahmaddien and Syaarkani 2019).

Table 8 : Partial Test (Test t) Innovation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,399	2,140		2,523	0,014
	INNOVATION	0,430	0,079	0,541	5,419	0,000

Source: SPSS

Table 9 : Partial Test (Test t) Product Quality

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,354	1,479		2,267	0,026
	PRODUCT QUALITY	0,586	0,063	0,740	9,258	0,000

Source: SPSS

Based on tables 8 and 9, it is known that the independent variable of innovation has a t-count result of 5.419 and product quality t-count results of 9.258 with a t-table value of 1.66691. If the value of both is compared to the t table, both have a value greater than the t table. So (H_2 is rejected and H_3 is accepted) and it can be concluded that there is an influence between the product quality variable on the Consumer Satisfaction variable partially.

4.5 Multiple Linear Regression Analysis

Multiple linear regression method is an analytical technique that tries to explain the relationship between two or more variables, especially between variables that contain cause and effect called regression analysis (Sulistyono and Sulistiyowati 2018).

Table 10 : Analisis Regresi Linier Bergnda

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,413	1,776		1,358	0,179
	INNOVATION	0,080	0,084	0,101	0,958	0,341
	PRODUCT QUALITY	0,534	0,084	0,674	6,382	0,000

Source: SPSS

$$\mathbf{Y= 2{,}413 + 0.080(X_1) + 0{,}534(X_2) + e}$$

It is known that a is a constant with a value of 2.413 which is a condition when the dependent variable or consumer satisfaction has not been influenced by other independent variables. The regression coefficient value for the Innovation variable is 0.080. The regression coefficient value of the Product Quality variable is 0.534. e is another variable outside the research.

A. Correlation Coefficient

Correlation analysis is "a statistical analysis technique used to determine the tendency of the relationship between one variable and another" (Budiwanto 2017).

Table 11 : Correlation Coefficient

Correlations

		INNOVATION	PRODUCT QUALITY	CONSUMER SATISFACTION
INNOVATION	Pearson Correlation	1	.653**	.541**
	Sig. (2-tailed)		0,000	0,000
	N	73	73	73
PRODUCT QUALITY	Pearson Correlation	.653**	1	.740**
	Sig. (2-tailed)	0,000		0,000
	N	73	73	73
Consumer Satisfaction	Pearson Correlation	.541**	.740**	1
	Sig. (2-tailed)	0,000	0,000	
	N	73	73	73

Source: SPSS

Based on the data above, the correlation value of the Consumer Satisfaction Innovation variable on consumer satisfaction is 0.541, meaning that the relationship between Innovation and Consumer Satisfaction is "Medium". While the correlation value of Product Quality on Consumer Satisfaction is 0.740, meaning that the relationship between Product Quality and Consumer Satisfaction is "Strong".

B. Coefficient of Determination

According to Gujarati "the coefficient of determination is a measure to determine the suitability or accuracy between the estimated value or regression line with the sample data" (Nurani 2017).

Table 12 : Coefficient of Determination

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate

1	.744[a]	0,553	0,540	1,844

Source: SPSS

Based on the table of results of the analysis of the coefficient of determination, the value of r square is 0.553 or 55.3%, while the rest is 44.7%. These results indicate if Innovation and Consumer Satisfaction contribute to being able to affect the Consumer Satisfaction of Coconut Charcoal on CV. Superior agro is 55.3% and the remaining 44.7% is influenced by other factors not observed in the study.

5. Conclusion

Based on the data from the available research, the conclusions are as follows. Based on the F test, the Innovation and Product Quality variables together have a significant influence on the Consumer Satisfaction variable. The t-test shows that the variables of Innovation and Product Quality are both independent, there is a partial effect on Consumer Satisfaction. The correlation value of the Consumer Satisfaction Innovation variable is 0.541 which means that the relationship between Innovation and Consumer Satisfaction is "Medium", while the correlation value of Product Quality is 0.740 which means that the relationship between Product Quality and Consumer Satisfaction is "Strong". Meanwhile, Innovation and Consumer Satisfaction contribute to the influence of Coconut Charcoal Consumer Satisfaction on CV. Superior agro is 55.3% and the remaining 44.7% is influenced by other factors that are not observed.

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