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Effect of Quality Control and Production Process on Product Quality CV. Sumedang Tofu Factory

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ABSTRACT

This study examines the impact of quality control and production processes on product quality at CV. Sumedang Tofu Factory. As tofu remains a staple food in Indonesia, maintaining high product quality is crucial for consumer satisfaction and competitive advantage. The research aims to determine how quality control and production processes influence product quality, addressing gaps in existing literature and practical challenges faced by the factory. Using a quantitative approach, data were collected via questionnaires from 54 employees, analyzed through multiple linear regression with SPSS Version 20. Findings reveal that quality control significantly enhances product quality ($t = 5.816$, $p < 0.05$), while the production process shows no significant effect ($t = -0.629$, $p > 0.05$). The model explains 52.1% of product quality variation, indicating room for other influencing factors. The study underscores the importance of robust quality control mechanisms to minimize defects and improve product reliability. However, the lack of impact from the production process suggests potential inefficiencies or inconsistent SOP implementation. Practical implications include recommendations for the factory to optimize quality control practices and reassess production workflows. Future research should explore additional variables like technology or environmental factors to provide a more comprehensive understanding of product quality determinants.

KEYWORDS *Quality Control; Production Process; Product Quality*

INTRODUCTION

Food is a basic human need that is vital in everyday life. Food consumption patterns are the distribution of the level of needs of an individual or family within a certain period of time, which are met by income. On a global scale, the food industry has grown rapidly, along with increasing consumer demand for products that not only meet nutritional standards but also offer high quality, taste, and safety.

Table 1. Average per capita consumption of soy-containing food ingredients, 2019-2023 in Indonesia

Year	2018	2019	2020	2021	2022	2023
Average Tofu Consumption	0.153	0.156	0.143	0.164	0.153	0.147

Source: Central Bureau of Statistics 2023

Table 1 shows the average consumption of nuts per person per week in East Jakarta from 2018 to 2023, using the unit of consumer goods in kilograms (kg) per person per week in *East Jakarta*. The consumption rate was 0.153 and increased slightly in 2019 to 0.156. However, in 2020, it decreased significantly to 0.143. This is most likely due to changes in people's consumption habits as a result of economic and social restrictions caused by the COVID-19 pandemic. Consumption in 2021 rose again to 0.164, which most likely indicates economic recovery and stabilization of consumer purchasing power. However, in 2022, the value fell again to 0.153, and in 2023, it decreased further to 0.147. Although the amount

fluctuates, *tahu* consumption remains high and stable in Indonesia, especially in *East Jakarta*, because *tahu* is an affordable source of vegetable protein and is popular with many people. In Indonesia, there are also other *tahu* variants such as *tahu putih*, *tahu kuning*, and *tahu sutra*, each of which has different characteristics and uses. Various *tahu* dishes are often favorites, such as *tahu goreng*, *bakso tahu*, *tahu isi*, and *tahu gejrot*. Especially in big cities like *Jakarta*, *tahu Sumedang* is becoming increasingly popular as a practical and delicious food for various groups, making *tahu Sumedang* a snack that is popular among people in various regions in Indonesia.

The current growth in *tahu* consumption has had a major impact on the development of *tahu* production. In production activities, companies naturally aim to make a profit by producing very good quality products. Companies must be able to implement the right business strategy in order to survive in the face of competition. According to (Absa & Suseno, 2022), companies must be able to provide, maintain, and improve quality to meet consumer desires and tastes. According to (Heizer & Render, 2022), in the book *Sustainability Management and Supply Chains* p. 301, product quality is the overall features and characteristics of a product or service that influence its ability to meet obvious or hidden needs. The advancement of the times has changed the way consumers view desired products. Product quality has become an important concern for a company in an effort to create a product. Quality products are the main criteria for consumers when choosing products offered by a company. This is in line with research by (Erdi1 & Haryanti, 2022) on the effect of raw material quality and the production process on product quality at PT Karawang Foods Lestari, with results showing that the quality of raw materials and production processes have a positive and significant effect on product quality at PT Karawang Foods Lestari. Similarly, research by (Hilary & Wibowo, 2021) on the effect of raw material quality and production process on product quality at PT Menjangan Sakti found a positive and significant effect of the quality of raw materials and the production process on the quality of PT Menjangan Sakti products.

The quality of *tahu* is determined by its appearance, which should be soft, tender, uniform in shape, smooth, and neutral in taste when eaten. Good *tahu* has sensory and microbiological qualities that meet established quality standards. The quality requirements for *tahu* according to SNI 3142-2018 can be seen in Table 2:

Table 2. Tofu Quality Requirements According to SNI 3142 of 2018

Test Type	Unit	Condition
Condition:		
a) Smell		Normal
b) Flavor		Normal
c) Color		Normal white or normal yellow
d) Appearance		Normal, not slimy, not moldy
e) Formalin (HCHO)		There can't be any
f) Water content	% (*w/w*)	Maximum 92
g) Protein Content (N x 5.71)	% (*w/w*)	Minimum 3.5
h) Ash		
i) Crude Fiber	% (*w/w*)	Maximum 0.1
j) Food Additives	% (*w/w*)	Maximum 0.1
	% (*w/w*)	In accordance with *SNI 3142-2018* and the Regulation of the Minister of Health
Metal Contamination		
a) Lead (*Pb*)	*mg/kg*	Maximum 0.25

b) Cadmium	*mg/kg*	Maximum 0.05
c) Mercury	*mg/kg*	Maximum 0.03
d) Tin (*Sn*)	*mg/kg*	Maximum 40.0
e) *As*) Contamination	*mg/kg*	Maximum 0.1

Source: National Standardization Agency (2018)

The quality level of the products produced consists of several characteristics that need to be maintained within certain limits. To ensure that the quality of the products remains within these limits, efforts must be made so that the machines, materials, humans, and methods (*4-M*) used in the production process do not undergo significant changes.

In Table 3, the production of *tahu Sumedang* is described as 1 *molen* weighing 13.5 kg, with 1 *molen* yielding 8 *papan*. Each 8 *papan* produces 100 pieces (*pcs*) of *tahu Sumedang*. The following is the data on tofu damage experienced by CV. *Pabrik Tahu Sumedang*:

Table 3. Tofu Damage in 2023

Month	Production Quantity (Mill) A	Damage Variable		Total Damage (Board) D	Percentage % (D/A x 100%)
		Wrong Size (Board) B	Damage to Tofu Shape (Board) C		
Jan	2.143	56	45	101	5%
Feb	2.251	23	142	165	7%
Mar	2.333	27	80	107	5%
Apr	2,442	33	98	131	5%
May	2.289	31	104	135	6%
June	2.425	29	82	111	5%
July	2,347	42	94	136	6%
Aug	1.605	36	128	164	10%
Sep	1,867	22	153	175	9%
Oct	1,890	31	159	190	10%
Nov	1,999	19	186	205	10%
Dec	1,769	28	183	211	12%
Amount	25,360	377	1,454	1,831	

Source: Data from CV. Sumedang Tofu Factory (2023)

Based on the data in Table 3, it is known that during one year the *tahu* business can produce 25,360 *molen* of *tahu*. The most common types of damage are due to deformities in the shape of the *tahu* and incorrect sizing, totaling 1,831 *papan*. Mishandling when placing or removing the *tahu* carelessly can cause the shape to become imperfect and no longer match the standard cut.

The essence of quality control is to monitor product quality during the manufacturing process until the finished product stage, in order to prevent products that do not meet quality standards from reaching consumers. Quality control activities are very broad and complex, as all variables affecting quality must be considered. According to (Elyas & Handayani, 2020) and Gasperz, quality control is a technique and operational activity used to meet expected quality standards. In general, quality control can be classified as follows: quality control of raw materials, which involves ensuring that the soybean raw materials used meet specified criteria—this includes rejecting rotten or moldy soybeans; control in the production process, which aims to minimize failures beyond the company's control, such as machine malfunctions and

power outages; and final product quality control, where checks are performed to ensure that products comply with the specified standards, including preventing the distribution of damaged *tahu*.

Based on this quality control classification, all processes have been implemented, but in practice, there are still problems related to product damage that lower the overall quality and decrease the purchase rate. The percentage of defective products produced exceeds the company's set tolerance limit of 5%. The differences in the level of damage can be seen in Table 4:

Table 4. Defect Product Data for 2023

Month	Production Quantity (Mill) A	Total Damage (Board) D	Percentage % (D/A x 100%)	Tolerance	*Gap*
Jan	2.143	101	5%	5 %	0 %
Feb	2.251	165	7%	5%	2%
Mar	2.333	107	5%	5%	0%
Apr	2,442	131	5%	5%	0 %
May	2.289	135	6%	5%	1%
June	2.425	111	5%	5%	0 %
July	2,347	136	6%	5%	1%
Aug	1.605	164	10%	5%	5%
Sep	1,867	175	9%	5%	4%
Oct	1,890	190	10%	5%	5%
Nov	1,999	205	10%	5%	5%
Dec	1,769	211	12%	5%	7%
Amount	25,360	1,831			

Source: Data from CV. Sumedang Tofu Factory (2023)

Based on Table 4, it can be seen from the percentage of defects—in February 7%, May 6%, July 6%, August 10%, September 9%, October 10%, November 10%, and December 12%—that the high percentage of defects has an impact on the achievement of production results. As shown in Table 1.4, this is the measurement of product quality at CV. *Pabrik Tahu Sumedang*, seen from the number of products that do not meet the quality standard criteria set by the company and are above the company's tolerance limit, which causes product quality to decline and results in losses for the company. In the study by (Wicaksono & Rahmawan, 2023), "The Effect of Quality Control on Product Quality at PT Prima Thomas Sejahtera," the results of the correlation coefficient analysis showed that the quality control variable had a significant influence on product quality.

The production process has a considerable influence on improving product quality—a good and smooth production process will result in good product quality, in line with research conducted by (Alrizal Noerpratomo, 2018), which found that there is an influence of the production process on the quality of irrigation gate products in manufacturing companies. This can be observed from the production process, as well-executed manufacturing will also produce high-quality irrigation gate products. Additionally, research by (Sentosa & Trianti, 2019) found that both partially and simultaneously, the quality of raw materials and the production process have a positive and significant influence on product quality. In the production process activities at CV. *Pabrik Tahu Sumedang*, based on the classification of production process

achievements, CV. *Pabrik Tahu Sumedang* achieved 85%. The following are the production results for the 2023 period:

Table 5. Production Results Data for 2023

Month	Production Target	Production result	Achievement
Jan	2,500	2.143	86%
Feb	2,500	2.251	90%
Mar	2,500	2.333	93%
Apr	2,500	2,442	98%
May	2,500	2.289	92%
June	2,500	2.425	97%
July	2,500	2,347	94%
Aug	2,500	1.605	64%
Sep	2,500	1,867	75%
Oct	2,500	1,890	76%
Nov	2,500	1,999	80%
Dec	2,500	1,769	71%

Source: Data from CV. Sumedang Tofu Factory (2023)

Based on Table 5, it can be seen that production targets were achieved from January to July 2023. However, in August, the achievement was only 64%, in September 75%, in October 76%, in November 80%, and in December 71%. These figures were below the minimum target of 85%. Judging from the number of production results, the targets were not met due to production defects. Steps to reduce the level of product defects include carrying out quality control within the production process to identify the factors causing the highest level of defects and to determine whether the process is under control or not. This can be addressed by making improvements and increasing product quality during the production process. According to (Arsawan, Dr. I Wayan Edi, SE et al., 2021) in the textbook *Pengantar Bisnis* p. 69, it is explained that the production process is a way, method, and technique to create or add utility to a good or service by utilizing various existing resources.

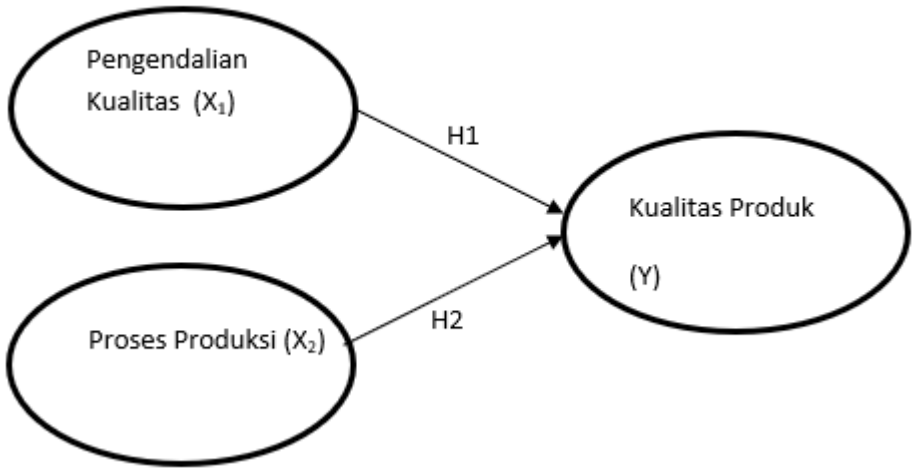

Figure 1. Thinking Framework

Based on the literature review that has been conducted, quality control plays a very important role in ensuring the quality of the products produced. Effective quality control is expected to minimize the occurrence of product defects, increase product reliability, and ultimately increase customer satisfaction. Therefore, the hypothesis in this study is that quality control has a positive and significant effect on product quality. This means that the better the quality control implemented, the higher the quality of the product produced. This statement is in line with research conducted by (Wicaksono & Rahmawan, 2023), where the results of the correlation coefficient analysis show that the quality control variable has a significant effect on product quality. This means that if quality control increases, the overall product quality will also increase.

H_1: Quality control has a significant positive effect on product quality.

The relationship between the production process and product quality is a cause-and-effect relationship. A good production process is the cause, while high product quality is the effect. This means that product quality cannot be separated from how the product is produced. This suggests that by improving and enhancing the production process, product quality will automatically increase. This statement is in line with research by (Sentosa & Trianti, 2019). Based on the results of their study, the key to a quality product lies in an integrated production process. The results of this study are also supported by other studies such as the research by *Alrizal Noerpratomo* (2018), which found that there is an influence of the production process on the quality of irrigation water gate products. This can be seen from the production process: making good irrigation gates will produce good quality irrigation water gate products as well. Thus, the production process is one of the factors that greatly determines the quality of the products produced by the company.

H_2: The production process has a positive effect on product quality.

Quality control and the *production process* are activities carried out to ensure that the products produced meet established quality standards, where product quality control aims to ensure that the products produced are in accordance with those standards. This means that product quality cannot be separated from how the product is produced. This suggests that by improving and enhancing the production process, the quality of the product will automatically increase. This is in line with previous research (Novianty et al., 2017), which states that the conclusion is that the production process and quality control together affect the quality of the products produced, with a determination coefficient value of 82.9%.

H_3: There is an effect of quality control and production process on product quality.

RESEARCH METHOD

This study uses a quantitative approach with an associative design to test the relationship between independent and dependent variables, namely *Quality Control* (X_1), *Production Process* (X_2), and *Product Quality* (Y). This method aims to obtain statistically tested results based on primary data collected in a structured manner.

Research Procedures

Population and Sample: The population of the study included employees of CV. *Pabrik Tahu Sumedang*. The sample was taken using the saturated sampling method. Based on the calculation, the number of samples was 54 respondents.

Data Collection: Primary data were collected through an online questionnaire distributed using *Google Forms*. The questionnaire was designed based on a *Likert scale* with a score range of 1 (Strongly Disagree) to 5 (Strongly Agree) to measure respondents' perceptions of the research variables.

Data Analysis Methods

Data analysis was performed using *SPSS* V 2.0. The analysis process includes: Variable Instrument Test—testing the validity and reliability of indicators; Classical Assumption Test—normality, heteroscedasticity, multicollinearity; Multiple Linear Regression Test; Determination Coefficient Test; and Hypothesis Test—performed by examining the t-statistic and p-value to determine the significant influence between variables.

RESULT AND DISCUSSION

Respondent Characteristics Analysis

Description of the questionnaire that has been distributed to 54 respondents. Respondents are employees, both male and female at CV. Sumedang Tofu Factory. Based on the results of the questionnaire distribution, the profile of employees, both male and female at CV. Sumedang Tofu Factory, is obtained, namely based on gender, age, education level and length of service. To find out the instruments that are included in the characteristics of the respondents, it can be seen from the following description:

Respondent Gender

Table 6. Respondents' Age

No.	Gender	Number of Respondents	Presentation
1.	Man	39	72%
2.	Woman	15	28%
Total		54	100%

Source: Primary Data Processing Results

Based on the data above, male respondents are more than female respondents. Male respondents are 72% or 39 respondents, while female respondents are 28% or 15 respondents.

Respondent Age

Table 7. Respondents' Age

No.	Respondent Age	Number of Respondents	Presentation
1.	< 25 years	8	15%
2.	26 - 30 years	16	30%
3.	30 - 45 years	24	44%
4.	> 46 years	6	11%
Total		54	100%

Source: Primary Data Processing Results

Based on the data above, respondents are grouped into 4 groups, namely the first group aged <25 years old amounting to 15% or 8 respondents, the second group aged 26-30 years old amounting to 30% or 16 respondents, the third group aged 30-45 years old amounting to 44% or 24 respondents, the fourth group aged > 46 years old or 6 respondents.

Level of education

Table 8. Education Level

No.	Level of education	Number of Respondents	Presentation
1.	High School/Vocational High School or Equivalent	44	82%
2.	D3	7	13%
3.	S1	3	5%
4.	S2/S3	-	-
	Total	54	100%

Source: Primary Data Processing Results

Based on the data above, it shows that the majority of respondents in this study had a high school/vocational high school education of 82% or 44 respondents, those with a D3 education of 13% or 7 respondents, those with a S1 education of 5% or 3 respondents, those with a S2/S3 education of 0% or 0 respondents.

Length of work

Table 9. Length of Service

No.	Length of work	Number of Respondents	Presentation
1.	< 5 years	5	9%
2.	6 – 10 years	17	32%
3.	11-15 years	28	52%
4.	> 16 years	4	7%
	Total	54	100%

Source: Primary Data Processing Results

Based on the data above, it shows that the majority of respondents in this study have worked for <5 years, amounting to 9% or 5 respondents, those who have worked for 6-10 years amounting to 32% or 17 respondents, those who have worked for 11-15 years amounting to 52% or 28 respondents, those who have worked for >16 years amounting to 7% or 4 respondents.

Research Instrument Test

Validity Test

Used to determine whether a questionnaire is valid or not. A model is said to be valid if the significant value is below 0.05 or 5%. The testing criteria are if r count > r table, then the question instrument is significantly correlated to the total score (declared valid). The number of data (n) = 54, and obtained df = 54-2 = 52, then the r table is 0.268.

Table 10. Validity Test of Product Quality Instrument (Y)

Statement	r_{count}		r_{table}	Information
INSTRUMENT 1	0, 794	>	0.268	Valid
INSTRUMENT 2	0, 753	>	0.268	Valid
INSTRUMENT 3	0, 800	>	0.268	Valid
INSTRUMENT 4	0, 562	>	0.268	Valid
INSTRUMENT 5	0, 675	>	0.268	Valid
INSTRUMENT 6	0, 655	>	0.268	Valid

INSTRUMENT 7	0, 596	>	0.268	Valid
INSTRUMENT 8	0, 827	>	0.268	Valid
INSTRUMENT 9	0, 725	>	0.268	Valid

Source: SPSS V 20 Data Processing Results

Based on the results of table 10, all statements of Product Quality (Y) are valid. This is because the calculated r value is greater than the r table of 0.268.

Table 11. Validity Test of Quality Control Instrument (X1)

Statement	r_{count}		r_{table}	Information
INSTRUMENT 1	0 ,808	>	0.268	Valid
INSTRUMENT 2	0, 759	>	0.268	Valid
INSTRUMENT 3	0, 850	>	0.268	Valid
INSTRUMENT 4	0, 825	>	0.268	Valid
INSTRUMENT 5	0, 738	>	0.268	Valid

Source: SPSS V 20 Data Processing Results

Based on the results of table 11, all Quality Control statements (X1) are valid. This is because the calculated r value is greater than the r table of 0.268.

Table 12. Validity Test of Production Process Instrument (X2)

Statement	r_{count}		r_{table}	Information
INSTRUMENT 1	0, 695	>	0.268	Valid
INSTRUMENT 2	0, 744	>	0.268	Valid
INSTRUMENT 3	0, 829	>	0.268	Valid
INSTRUMENT 4	0, 711	>	0.268	Valid
INSTRUMENT 5	0, 753	>	0.268	Valid

Source: SPSS V 20 Data Processing Results

Based on the results of table 12, all statements of the Production Process (X2) are valid. This is because the calculated r value is greater than the r table of 0.268.

Reliability Test

In the study, this instrument is in the form of numbers and a graduated scale, so the Cronbach's Alpha formula is used to test its reliability. An instrument is declared reliable if the Cronbach's Alpha value of an instrument is 0.600. If the Cronbach's Alpha of an instrument is below that value, it is declared unreliable.

Table 13. Instrument Reliability Test

Variables	Cronbach's Alpha	Limit	Information
Product Quality	0, 869	0.268	Valid
Quality Control	0, 855	0.268	Valid
Production process	0, 800	0.268	Valid

Source: SPSS V 20 Data Processing Results (2025)

Based on the results of table 13, it shows that the Cronbach's Alpha of each variable is worth 0.869, 855, and 0.800. This shows that the Cronbach's Alpha value is greater than 0.600,

which means that all statements related to Product Quality, Quality Control, and Production Process are declared good and reliable.

Classical Assumption Test

The classical assumption test in this study uses the Normality Test, Heteroscedasticity Test, and Multicollinearity Test.

Normality Test

The normality test aims to test whether in the regression model the independent variable and the dependent variable or both have a normal distribution or not. A good regression model has a residual value that is normally distributed. The test is carried out using a normal probability plot curve, with the provision that if the points on the graph are spread out and squeezed around the diagonal line, then the data used is normally distributed. This test can also be done with Kolmogorov-Smirnoc, This test is carried out with the following criteria:

1. If the significance value > 0.05 then it can be concluded that the residual distribution of the research data is normal.
2. If the significance value is <0.05, it can be concluded that the residual distribution of the research data is not normal.

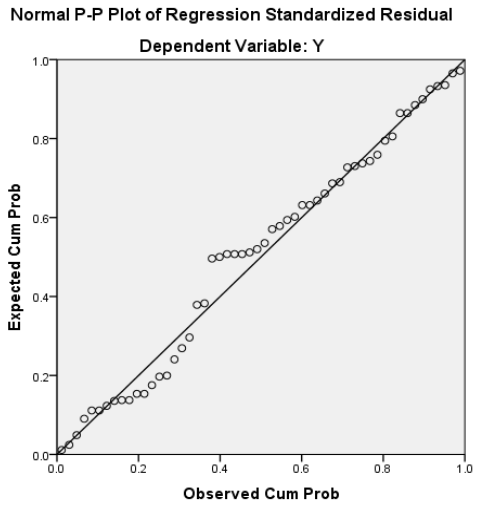

Figure 2. Normal P-Plots Graph
Source: SPSS V 20 Data Processing Results (2025)

Based on the normality test of the Normal P-Plot graph above, it shows that the data distribution follows its diagonal line, although it is slightly spread out but still surrounds its diagonal line. This statement indicates that "the residuals in the regression model follow a normal distribution".

Table 14. One-Sample Kolmogorov-Smirnov

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		54
Normal Parameters [a,b]	Mean	0E-7
	Std. Deviation	3.09209603
Most Extreme Differences	Absolute	,126
	Positive	,083
	Negative	-,126
Kolmogorov-Smirnov Z		,923
Asymp. Sig. (2-tailed)		,362
a. Test distribution is Normal.		
b. Calculated from data.		

Source: SPSS V 20 Data Processing Results (2025)

The results of this test show that the asymp sig (2-tailed) value of 0.362 is greater than α (0.050) (significance level), which means that the processed data tested has a normal distribution.

Heteroscedasticity Test

Heteroscedasticity is an indication of non-homogeneous variance between residuals which results in the estimated value obtained no longer being efficient. The testing method to detect the presence or absence of heteroscedasticity can be done by looking at the plot graph between the production value of the dependent variable (ZPRED) and its residual (SRESID) where the Y axis is the predicted Y, and the X axis is the residual (predicted Y-actual Y) which has been stundentized.

Detection of heteroscedasticity, namely by looking at the presence or absence of a certain pattern on the scatterplot graph. The basis for decision making is:

- If there is a certain pattern, such as points that form a certain regular pattern such as wavy, widening and then narrowing, then heteroscedasticity occurs.
- If there is no clear pattern, and the points are spread above and below the number 0 on the Y axis, then there is no heteroscedasticity or homoscedasticity.

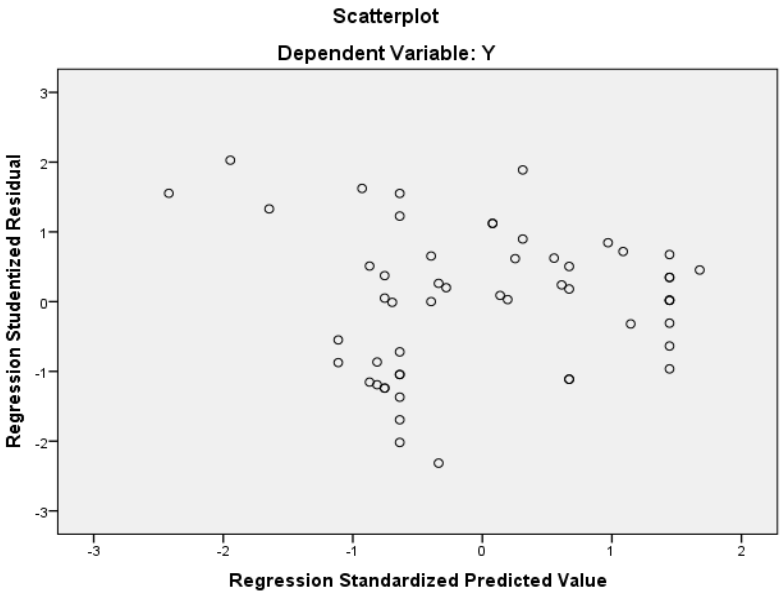

Figure 3. Scatterplot
Source: SPSS V 20 Data Processing Results (2025)

Based on Figure 3 above, it can be seen that the points on the scatterplot are spread randomly without forming a particular pattern, either above or below the number 0 on the Y axis. This condition indicates that the variance of the residual error is constant (homoscedasticity), so that the model is considered feasible and valid for use in further analysis.

Multicollinearity Test

Multicollinearity testing is seen from the VIF and tolerance values. Tolerance measures the selected independent variables that are not explained by other independent variables. So a low tolerance value is the same as a high VIF value (because VIF = 1/tolerance). The cutoff value commonly used to indicate multicollinearity is a tolerance value ≥ 0.01 or equal to a VIF value ≤ 10".

Table 15. Multicollinearity Test Coefficientsa

Coefficients [a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	9.333	4.977		1,875	.067		
1X1	1,532	.263	.777	5,816	.000	.525	1,904
X2	-.188	.299	-.084	-.629	.532	.525	1,904

a. Dependent Variable: Y

Source: SPSS V 20 Data Processing Results (2025)

Based on table 15 above, it shows that the VIF (Variance Inflation Factor) value is 1.904 <10 and the Tolerance value is 0.525> 0.10 in all variables used in the study. This shows that there is no perfect or near-perfect linear relationship between the independent variables. So that the regression model in this study did not find multicollinearity problems and has met the requirements of a good regression model.

Data Analysis Methods

Multiple Linear Analysis

This analysis is to determine the influence of a Product Quality variable (Y) which is connected to the Quality Control variable (X1) and Production Process (X2).

Table 16. Multiple Linear Regression Test

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.333	4.977		1,875	.067
	X1	1,532	.263	.777	5,816	.000
	X2	-.188	.299	-.084	-.629	.532

a. Dependent Variable: Y

Source: SPSS V 24 Data Processing Results (2025)

Based on the results of the SPSS calculations in table 16 above, a multiple linear regression equation can be compiled as follows:

$Y = \alpha + \beta\ 1\ X\ 1 + \beta\ 2\ X\ 2 + \beta\ 3\ X\ 3 + e$

α = 9.333, meaning that Production Quality (Y) has a positive value which indicates that if Quality Control and Production Process have a value of 0, then the product quality is estimated to be 9.333.

β1 = 1.532, indicating that the Quality Control variable has a positive effect on product quality, which indicates that a 1% increase in this variable will tend to increase product quality.

β2 = -0.188, indicating that the Production Process variable has a negative direction towards product quality and has no effect, indicating that a 1% increase in this variable will cause product quality to tend to decrease.

Determination Coefficient Analysis

The coefficient of determination has a function to determine how much influence the independent variables, namely Quality Control (X1) and Production Process (X2) have on the dependent variable, namely Product Quality (Y).

Table 17. Determination Coefficient Test

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.722 [a]	.521	.503	3.152

a. Predictors: (Constant), X2, X1

b. Dependent Variable: Y

Source: SPSS V 20 Data Processing Results (2025)

From the results of the Determination Coefficient test, it shows that the R Square (R2) value is 0.521 or 52.1%. This result shows that the dependent variable, namely Product Quality, is influenced by the Quality Control and Production Process variables by 52.1%. Meanwhile, the remaining 42.1% is likely influenced by other variables not included in this study.

Hypothesis Testing

Partial Test (t-Test)

The t-test is used to test whether the independent variable partially has a significant effect on the dependent variable. Determining the critical value and significance level. The significance level in this study is 5%, meaning the risk of making a decision error is 5%.

Decision-making

If the probability (sig t) > α (0.05) then Ho is accepted, meaning there is no significant partial influence of the independent variable (X) on the dependent variable (Y).

If the probability (sig t) < α (0.05) then Ho is rejected, meaning that there is a significant partial influence from the independent variable (X).

Table 18. Partial Test

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.333	4.977		1,875	.067
	X1	1,532	.263	.777	5,816	.000
	X2	-.188	.299	-.084	-.629	.532

a. Dependent Variable: Y

Source: SPSS V 20 Data Processing Results (2025)

For a significance level of 0.05 and df = (54 - 2 - 1) 51, the t table obtained is 2.007.

The Influence of Quality Control on Product Quality

The calculated t value (5.816) > t table (2.007) with a significance of 0.000 < 0.05. This means that Ho is rejected and Ha is accepted. Quality Control (X1) has a significant positive effect on Product Quality (Y) and can be used as a reference for consideration.

The Influence of Production Process on Product Quality

The calculated t value (-0.629) < t table (2.007) with a significance of 0.532 > 0.05. This means that Ho is accepted and Ha is rejected. The Production Process (X2) does not have a significant negative effect on Product Quality (Y), so it is not strong enough to be used as a reference.

f test

The F statistical test is basically to determine the influence of independent variables simultaneously or simultaneously on dependent variables. The results of the hypothesis of alternating linear regression can be seen as follows:

Table 19. The results of the hypothesis of alternating linear regression

ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	552,097	2	276,049	27,783	.000 [b]
	Residual	506,736	51	9.936		
	Total	1058.833	53			

a. Dependent Variable: Y

b. Predictors: (Constant), X2, X1

Source: SPSS V 20 Data Processing Results (2025)

For a significance level of 0.05 and df = (54 - 2 - 1) 51, the f table obtained is 3.18. The following are the conclusions. The calculated f value (27.283) > t table (3.18) with a significance of 0.000 < 0.05. This means that Ho is rejected and Ha is accepted. Quality Control (X1) and Production Process (X2) simultaneously have a significant positive effect on Product Quality (Y) and can be used as a reference for consideration.

This study aims to analyze the effect of Quality Control and Production Process on Product Quality at CV. Sumedang Tofu Factory. The results of the analysis show that Quality Control has a significant positive effect on Product Quality, with a t-count value of 5.816 which is greater than the t table (2.007) and a significance of 0.000 <0.05. This indicates that increasing efficiency and optimizing quality control are the main factors in improving product quality. On the other hand, the Production Process does not have a significant effect on Product Quality, with a t-count value of (-0.629) <t table (2.007) and a significance of 0.532> 0.05. These results indicate that improvements in the production process aspect may not have been carried out optimally, so that they are less able to contribute to improving product quality directly. Based on the Adjusted R Square value of 52.1%, the variables Quality Control and Production Process together are able to explain 52.1% of the variation in Product Quality, while the remaining 47.9% is influenced by other variables not included in this study.

As a suggestion, the company needs to improve production process efforts, such as ensuring that SOPs are implemented consistently and minimizing the level of product damage. In addition, optimization of the production process needs to be continued to ensure sustainable efficiency. For further researchers, it is recommended to add other relevant variables, such as product innovation, production technology, or environmental aspects, to provide a more comprehensive picture of the factors that influence product quality. Extension of the research period can also be done to analyze more stable long-term trends. With this research, it is expected that the company can develop a more effective production strategy, while providing guidance to further researchers to expand the scope of studies in the field of product quality.

CONCLUSION

Product quality is an essential element of customer satisfaction, making it important for management to pay attention to key factors such as product performance, features, reliability, durability, design, style, shape, and ease of quality, while also continuously re-analyzing whether the quality provided is currently optimal so that consumers feel satisfied with *tahu Sumedang* products. To reduce the quantity of defective products, the company needs to

analyze and find solutions for each source of defects and socialize these findings to all employees, so that when potential issues arise in the workplace, employees are able to address them effectively. To improve *quality control* of the *production process*, the company must identify the occurrence of defects in machines, labor, natural resources, and the work environment, ensuring that the proportion of good products increases.

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