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Analysis of Factors Affecting Consumption of Culled Layer Chicken Meat in Selupu Rejang, Rejang Lebong Regency, Bengkulu Province

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ABSTRACT

This study aims to examine the community's decision-making process for purchasing culled layer chicken meat and to identify the factors that affect its consumption in the Selupu Rejang Subdistrict. The research was conducted from April to June 2024 in Talang Lahat, Baru Palbatu, Simpang Nangka, and Karang Jaya Urban Villages. The sample comprised 60 respondents, selected through purposive sampling based on the criterion of consuming culled layer chicken meat. The analysis of factors affecting the consumption of purchasing culled layer chicken meat employed multiple linear regression. The results show an Adjusted R^2 of 0.639, indicating that the independent variables explain 63.9 percent of the variance in culled layer chicken meat consumption. Simultaneously, the independent variables significantly influence the consumption. The independent variables with a significant effect are family size, education level, and broiler chicken meat price. Family size and education level have substantial adverse effects ($P < 0.05$), whereas broiler chicken price has a significant positive impact ($P < 0.05$) on consumption of culled layer chicken meat. The decision-making process in consuming culled layer chicken meat includes need recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behavior.

Keywords: culled layer chicken meat; consumption; decision-making process; factor of consumption

INTRODUCTION

Chicken meat is among the most widely consumed animal proteins in Indonesia. The consumption of animal protein in Indonesia in 2024 is 0.41 kg per capita per year for beef and 7.39 kg per capita per year for chicken meat (Badan Pusat Statistik, 2024). Based on these data, per capita consumption of chicken meat in Indonesia is higher than that of beef. This is because chicken meat is readily available and more affordable. In addition to broiler chicken meat, laying hens that have reached the end of their productive life are also consumed by the public. Layer chickens can be consumed for their meat when they have reached the end of their productive life or are no longer producing eggs.

Layer chickens are adult female chickens raised for egg production. Castro *et al*. (2023) stated that layer chicken stock originates from Grand Parent Stock (GPS) and Parent Stock (PS). Grand Parent Stock (GPS) chickens produce Parent Stock (PS) chickens, which in turn produce laying hens known as Final Stock (FS) chickens. Layer chickens are raised from one-day-old (DOC) until they are culled (>63 weeks) (Sholiha *et al*., 2022). Laying hens can lay eggs almost every day for three years, after which their meat can be consumed (Mustafa *et al*., 2023). Layer chickens can be used for beef when production declines during the culling period. Egg production in laying hens reaches its peak at 96% at 26 weeks of age. Layer chickens are culled at 80 weeks of age because, as hens age, their egg-laying ability decreases due to reduced mineral content in their bodies (Wijaya *et al*., 2023).

Culled layer chicken meat is relatively easy for the community to obtain because it is available through various distribution channels. This product is commonly sold in traditional markets and poultry markets as part of traded chicken meat commodities. In addition, culled layer chicken meat can be purchased from vendors who directly serve consumers in residential areas. The meat of culled layer chickens is a widely available source of animal protein, including in traditional markets (Windyasmara *et al*., 2024). The meat of culled layer chickens also has nutritional content, namely 25.4% protein, 56% water, and 3-7.3% fat (Mardhika *et al*., 2020). With these dietary contents, culled layer chicken meat can be consumed by the community. One example is the community in Selupu Rejang District, Rejang Lebong Regency, Bengkulu. Culled Layer chicken meat is consumed in Selupu Rejang District as a daily staple. In addition, culled layer chicken meat is also consumed by the people of Selupu Rejang Subdistrict for traditional

ceremonies and certain celebrations. Its utilization in such events underscores its cultural significance, reflecting deep-seated community preferences for local chicken products, which are often favored for their distinctive taste and perceived quality (Silondae *et al*., 2022). Therefore, it can be said that culled-layer chicken meat is popular among residents of the Selupu Rejang Subdistrict. Given the high consumption of culled layer chicken meat among the people of Selupu Rejang, it is hoped that culled layer chicken meat can serve as an alternative to meet chicken meat needs, in addition to broiler chickens.

This is supported by the imbalance between the demand and supply of broiler chicken meat in Bengkulu Province, where demand exceeds supply. Based on statistical data, the supply and demand of broiler chicken meat in Bengkulu Province are 13,042 tons and 19,283 tons, respectively (Badan Pusat Statistik, 2024). Therefore, this study examines "Factors affecting the consumption level of spent laying hens in Selupu Rejang District," which aims to assess the decision-making process of the community in Selupu Rejang District in consuming spent laying hens and determine the factors that affect the consumption of culled layer chicken meat in Selupu Rejang District based on consumer characteristics.

MATERIALS AND METHODS

The study was conducted from April to June 2024 in Selupu Rejang Subdistrict, Rejang Lebong District, Bengkulu Province. The locations selected were Talang Lahat Village, Baru Palbatu Village, Simpang Nangka Village, and Karang Jaya Village using purposive sampling. Respondents in this study were individuals who consumed spent laying hens and were at least 20 years old. The sample comprised 60 respondents, 15 from each village. Respondents were selected via purposive sampling based on their consumption of animal protein from culled layer chickens. The data comprised primary and secondary sources. Primary data were obtained from respondent interviews, and secondary data from relevant agencies. Data were collected through interviews with respondents using questionnaires.

Data analysis was performed descriptively using a quantitative approach. Descriptive analysis was conducted to examine the characteristics of respondents and their decision-making regarding the consumption of spent laying hens. The factors affecting the level of consumption of culled layer chicken meat were analyzed using multiple linear regression analysis with the following formula:

$$Y = \alpha + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$$

Notes:
Y = consumption of culled layer chicken meat (kg/month/capita)
α = constant
b = regression coefficient
X_1 = number of family members (person)
X_2 = income (IDR/month)
X_3 = education level (years)
X_4 = price of broiler chicken meat (IDR / kg)
X_5 = price of culler layer chicken meat (IDR / kg)

A regression model has basic assumptions that must be satisfied to produce unbiased estimates (BLUE: Best Linear Unbiased Estimators). Therefore, it is necessary to conduct tests to ensure that the regression model complies with the OLS assumptions. The assumption tests employed include tests for multicollinearity, heteroskedasticity, and autocorrelation. If the regression model is free of violations of the classical assumptions, the analysis continues by regressing the dependent variable on the independent variables using Ordinary Least Squares (OLS). Testing of factors that simultaneously affect the consumption of culled layer chicken meat uses the F-test, whereas partial testing uses the t-test.

RESULTS AND DISCUSSION

Respondents Profile

The respondent profiles in this study provide essential information on participant characteristics. The respondent profile data includes gender, education level, number of family members, and primary occupation. The presentation of these respondent profiles aims to provide a general overview of the respondents' backgrounds, thereby helping to contextualize the research results. The respondents' profiles for this study are presented in Table 1. The average age of respondents was 45.18 ± 13.09 years. These results indicate that respondents were of productive age. Productivity in adulthood requires adequate nutrition to support work performance. A person's nutrition and health are related to work productivity.

Table 1. Respondents profile (n = 60)

Components	Average/Frequency	%
Average age (years)	45.18 ± 13.09	
Gender		
Male	22	36.67
Female	38	63.33
Formal education		
Elementary School	28	46.67
Junior High School	18	30
Senior High School	12	20
Universities	2	3.33
Number of family members (person)	3 ± 1.29	
Occupation:		
Farmer	33	55
Entrepreneur	5	8.33
Civil servant	1	1.67
Other	21	35

A person with good physical health and proper nutrition will be physically fit and have good cognitive function while performing work. Efforts to improve workforce nutrition include encouraging the consumption of nutritious foods. (Umaini *et al*., 2024). The respondents were predominantly female (63.37%). Purchasing decisions in a household are inseparable from gender. Women are responsible for household management and for decision-making regarding household purchases. Pical *et al*. (2020) Stated that women participate in household decision-making, including decisions on purchasing household needs, family businesses, family financial management, and children's education.

The respondents' education level was dominated by elementary school graduates, accounting for 46.67%. Ginting (2022) Stated that education level can provide opportunities for individuals to obtain employment, which can help increase their income. This can influence an individual's decision to purchase a product. The respondents' main occupation was farming, accounting for 55%. The type of occupation affects the family's economic status and welfare. Astika *et al*. (2023) Stated that occupation is a source of income that is related to the welfare level of the family. The level of family welfare supports the fulfillment of family needs, including encouraging consumption. The number of family members per respondent ranged from 3 to 4, with a mean of 3±1.29. Wardandy *et al*. (2022) Stated that the greater the number of family members, the more food will be needed, which will affect the amount of chicken purchased.

Decision-Making Process in Consuming Culled Layer Chicken Meat

Identification of needs

The consumer purchasing process begins with the identification of needs. Internal factors trigger these needs, which then escalate into a desire to purchase. External factors, such as advertising or family influences can also trigger needs. (Kotler and Keller, 2016). Based on the study results, the community's need in Selupu Rejang Subdistrict to consume culled layer chicken meat stems from a desire to substitute for broiler chicken meat. The community widely consumes broiler chicken meat, but it is more expensive than cull layer chicken meat. This situation has led the community to consume culled layer chicken meat for daily consumption and on special occasions. Toma *et al*. (2024) Stated that cull layer chickens are by-products of the poultry industry and are generated in substantial quantities. The meat derived from spent laying hens is generally marketed at a lower price than broiler chicken meat, thereby making it a more economically accessible option for consumers.

In addition, the nutritional benefits of culled layer chicken meat are nearly identical to those of broiler chicken meat, thereby increasing the Selupu Rejang community's interest in consuming it. Broiler chicken meat also contains 25.4% protein, 56% water, and 3-7.3% fat. (Mardhika *et al*., 2020). Therefore, broiler chicken meat can serve as an alternative to meet the demand for chicken meat.

Information search

After recognizing the need to purchase a product, interested consumers will search for information about it. Information searches can be conducted through internal or external sources. Consumers can obtain information from various sources, including personal experiences, public sources, and personal accounts. Personal sources include family, friends, or neighbors. Public sources include social media, while commercial sources include advertisements, marketers, and websites. (Kotler and Keller, 2016). After identifying the basic need for consumption, the community begins to seek information about meat from culled layer chickens.

Based on the study results, information received by the Selupu Rejang community about culled layer chicken meat comes from personal, public, and commercial sources. Personal sources primarily include family members and neighbors who share information directly through word of mouth, drawing on their own experiences. The information conveyed generally relates to the price and the use of culled layer chicken meat. Sharing information through the experiences and testimonies of family members or neighbors increases public trust, thereby encouraging confidence and interest in purchasing meat from culled layer chickens.

Word-of-mouth marketing plays a vital role in influencing purchasing decisions for culled layer chicken meat. Information conveyed directly by family members, neighbors, or close acquaintances is usually based on their firsthand experiences with consuming and using culled layer chicken meat, making it more readily trusted by potential consumers. The trust built through such testimonials makes people feel confident about the product's quality, price, and usefulness. This condition fosters positive perceptions and reduces doubts, which ultimately has a direct impact on the community's decision to purchase culled layer chicken meat. Maknunah *et al*. (2023) Stated that word-of-mouth marketing is a form of marketing communication that can influence consumers' purchasing decisions. Individuals are inherently inclined to enjoy social interaction and communication with others. Through such interpersonal communication, information about a product is more easily received and trusted.

Public sources of information come from social media and search engines. Social media platforms commonly used by the Selupu Rejang community include Instagram, TikTok, Facebook, and WhatsApp groups, which often provide information about the nutritional content of spent laying hen meat through attractive images and videos. Such visual presentations can attract people's interest in purchasing the product. Meanwhile, information obtained from search engines such as Google is often supported by references to government educational websites or research journals, thereby increasing public trust in purchasing decisions regarding culled layer chicken meat. Commercial information sources are through traders, both traditional market traders and the pitchman. The primary information sought by the community concerns price. Price is an essential consideration for the community when deciding whether to consume meat from culled layer chickens.

Evaluation of alternatives

After obtaining the results of their information search, consumers will evaluate the alternatives accordingly. At this stage, a choice will be assessed to determine whether it meets the consumer's needs. Consumers sometimes make their own decisions about products, while others seek advice from friends, family, merchants, and social media reviews. (Kotler and Keller, 2016). The primary consideration for the Selupu Rejang community in consuming culled layer chicken is the price of the meat. This is because the community previously compared the cost of culled layer chickens with that of broiler chickens. The cost of culled layer chickens is lower than that of broiler chickens. Based on the study results, the price of culled layer chicken meat in Selupu Rejang Subdistrict is IDR 30,000 per kilogram, whereas the cost of broiler chicken is IDR 38,000 per kilogram. Another consideration for the community in deciding to purchase culled layer chicken meat is its easy availability, as it can be obtained from traditional markets, poultry markets, and mobile vendors. In conventional markets in Selupu Rejang Subdistrict, numerous stalls sell culled layer chicken meat, either live or processed.

Purchase decision

Consumers will purchase after evaluating various alternatives based on the product information they have selected. The frequency of purchase of culled layer chicken meat by the Selupu Rejang community averages 1-2 times per week, depending on shopping frequency. A total of 56.67% of respondents in Selupu Rejang buy culled layer chicken meat at traditional markets, while 43.33% of respondents buy culled layer

chicken meat from a seller. Access to culled-layer chicken meat is relatively easy, with an average distance of 1-3 km. A total of 95% of respondents in the Selupu Rejang community consume and bring culled layer chicken meat at certain celebrations. This indicates that culled-layer chicken meat is widely used for certain celebrations in the Selupu Rejang community. The culture of bringing culled layer chicken meat to certain events has been passed down from generation to generation in the Selupu Rejang community. This indicates that the culture of the Selupu Rejang region also shapes the decision to purchase for consumption.

Post-purchase

After consuming a product, consumers may feel satisfied or dissatisfied. If the product meets consumer expectations, then consumers will feel confident with it. Satisfied consumers will return to consume the product again (Kotler and Keller, 2016). The study found that respondents in Selupu Rejang were satisfied with the consumption of meat from culled laying hens. This was due to the reasonable price and ease of access to cull-layer chicken meat. The Selupu Rejang community demonstrated this satisfaction in their decision to consume culled layer chicken meat, both for daily consumption and for use in certain adat ceremonies.

Factors Affecting the Consumption Level of Culled Layer Chicken Meat

Multiple linear regression was conducted to assess the relationship between the dependent variable and multiple independent variables. This study analyzed the factors affecting the consumption level of culled layer chicken meat. The dependent variable was the consumption level of culled layer chicken meat. In contrast, the independent variables were family members, income, education, the price of culled layer chicken meat, and the price of broiler chicken meat. The results of the classical assumption tests indicate that the regression model meets the required assumptions, as no multicollinearity, heteroskedasticity, or autocorrelation is detected. The results of the multiple linear regression analysis are shown in Table 2.

Table 2. Result of multiple linear regression analysis of the factors that influence the consumption of culled layer chicken meat

Variable	Coefficient	Sig
(Constant)	1.667	0.000
Number of family members (X_1)	-0.274**	0.000
Income (X_2)	1.567^{ns}	0.780
Education level (X_3)	-0.246**	0.000
Price of culled layer chicken meat (X_4)	7.316^{ns}	0.083
Price of broiler chicken meat (X_5)	1.849**	0.017
Prob (F-statistic)	0.0000	
R-square	0.670	
Adjusted R^2	0.639	

Notes:
** = significance at the 99% confidence level (α = 0.01)
* = significance at the 95% confidence level (α = 0.05)
ns = not significant

Based on the results of the regression analysis, the production function equation is as follows:

$$Y = 1.667 – 0.274X_1 + 1.567X_2 – 0.246X_3 + 7.316X_4 + 1.849X_5$$

Table 2 presents the multiple linear regression results for factors affecting the consumption of culled layer chicken meat. The analysis yielded the regression coefficients, t-values, significance levels for each independent variable, R2, Adjusted R2, and the F-value. The coefficient of determination (R2) quantifies the proportion of the variance in the dependent variable explained by the independent variables. The coefficient of determination (Adjusted R2) serves the same function as R2: it quantifies the proportion of variance in the dependent variable explained by the independent variables in the regression model. In the table above, the adjusted R-squared for the regression model is 0.639. This value indicates that 63.9% of the variance in the

dependent variable (consumption of culled layer chicken meat) is explained by the model's independent variables: number of family members, income, education level, broiler chicken meat price, and culled layer chicken meat price. The F-test results in the table above yield an F statistic of 0.000. The F.sig. The obtained value is smaller than the α values (1%, 5%, and 10%), indicating that the number of family members, income, education level, the price of broiler chickens, and the price of culled laying hens significantly influence the consumption of culled laying hens.

Number of family members. The regression analysis results in the table above indicate that the regression coefficient for the number of family members is negative, indicating that an increase in the number of family members is associated with a decrease in the consumption of culled layer chicken meat. The coefficient value for the number of family members is −0.274, which means that for every increase of one family member, the consumption of culled layer chicken decreases by 0.274 kg. These results indicate that the number of family members negatively affects the consumption of culled layer chicken meat. This suggests that consumption of culled layer chicken meat varies among family members' taste preferences. Each family member has different tastes. Not all family members have the same preferences for a food product. The more family members there are, the more diverse their tastes for a food product will be. Therefore, the more family members there are, the more likely it is that not all will like eating laying hen meat. Anas *et al*. (2024) state that household size can be used to analyze household life, including product consumption. The more family members there are, the more diverse the products consumed will be, depending on everyone's preferences. Therefore, household product consumption is influenced by differences in individual tastes.

Education. The results of the regression analysis presented in the table above indicate that the regression coefficient for the education variable is −0.246, suggesting an adverse effect. This coefficient indicates that a one-unit increase in education is associated with a 0.246 kg decrease in consumption of spent laying hen meat. This suggests that higher community educational attainment is associated with lower consumption of culled layer chicken meat. These results indicate that educational attainment is negatively associated with the consumption of culled layer chicken meat. A person's level of education is related to their level of knowledge. The higher a person's level of education, the broader their knowledge. This indicates that the higher the community's level of education, the greater the understanding of the types of meat consumed. This knowledge may include nutritional content, taste, processing methods, and price. This knowledge leads to more choices, which in turn leads to a desire to try other types of meat. Matatula and Kewila (2023) stated that education level influences individuals' knowledge and information. The higher the level of education, the broader a person's knowledge. This can affect the level of product consumption. Jafrizal (2020) stated that education level is related to consumer behavior regarding product consumption. Differences in educational attainment will lead to differences in consumption among individuals. Consumers with higher levels of education are more receptive to innovations, which influences their preferences for product diversity. Ginting (2022) states that education provides employment, and family members earn wages. This means that the higher a family's income or wages, the more likely they are to consume more expensive meat.

Broiler chicken meat prices. The regression analysis results in the table above indicate that the regression coefficient for the broiler chicken price variable is positive, suggesting that higher broiler chicken prices are associated with greater consumption of culled layer chicken meat. The coefficient value of the broiler chicken price variable is 1.849, indicating that each one-unit increase in the broiler chicken price will increase the consumption of culled layer chicken meat by 1.849 kilograms. These results indicate that broiler chicken meat prices significantly affect the consumption of culled layer chicken meat. These results indicate that the higher the price of broiler chicken meat, the greater the consumption of spent, cull layer chicken meat. Higher broiler chicken meat prices will prompt consumers to switch to more affordable meat alternatives. In this case, the meat alternative consumed by the Selupu Rejang community is culled layer chicken, which is cheaper than broiler chicken.

CONCLUSION

Based on the research findings, it can be concluded that the number of family members, income, education level, broiler chicken meat prices, and culled layer chicken meat prices

simultaneously affect the consumption of spent laying hen meat in Selupu Rejang Subdistrict. Among the factors with a significant effect are the number of family members, education level, and broiler chicken prices. These findings indicate that culled-layer chicken meat serves as an alternative to broiler chicken meat when prices increase, with consumption patterns influenced by household socioeconomic conditions. The step-by-step consumer decision-making process underscores the importance of information access and market access for consumers. In practice, the results of this study are beneficial for business actors and farmers in formulating marketing strategies and pricing for culled layer chicken meat, as well as for local governments in developing price-stabilization policies, food-consumption literacy, and the diversification of animal protein sources for the community.

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