

Identification of Market Demand for Omega-3 Eggs in Bogor Regency

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ABSTRACT: The egg market is a crucial sector in the food industry. Eggs are not only an affordable and highly nutritious source of protein but also offer nutritional variations that can be tailored to consumer needs. Increasingly knowledgeable consumers and easily accessible information have opened new opportunities for the development of innovative food products that meet public health needs. One such product is omega-3-enriched eggs. This study aimed to identify the demand for omega-3 eggs in Bogor Regency. The survey method was used from August 22-23, 2023. The survey results indicate that most consumers are willing to purchase omega-3 eggs in large quantities, with 50% of respondents willing to pay Rp. 3000 per egg. These findings reflect high interest in increasing omega-3 fatty acid intake through accessible products. Furthermore, 37% of respondents often shop for eggs at supermarkets, indicating a significant opportunity for product placement in major retail stores. Practical packaging with plastic mica was also preferred by 70% of respondents due to its practicality and efficiency. Thus, omega-3 eggs can be developed in Bogor Regency because they meet market needs and offer promising business opportunities.

Keywords: Bogor Regency; Market Demand; Omega-3 Eggs

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INTRODUCTIONS

The population growth in Bogor Regency continues to increase yearly. Data from the Central Bureau of Statistics (BPS) show that the population in Bogor Regency was 5,489,530 in 2021 (Badan Pusat Statistik, 2021), increasing to 5,566,840 in 2022 (Badan Pusat Statistik, 2022). This population growth significantly impacts the increase in food demand, which is also related to nutritional needs for health maintenance. One primary source of nutrition, protein, can be obtained from animals. Therefore, the livestock industry has the potential to support the increasing demand for animal-based food to meet the needs of the population. Chicken eggs are a commonly consumed source of animal protein. According to Artini and Rusmanto (2017), eggs are a nutrient-rich food with an affordable price compared to other protein sources and are widely available. Essential nutrients such as protein, fat, vitamins, and minerals needed by the human body can be found in eggs (Siahaan, 2017).

The egg market is crucial in the food industry. Eggs are not only affordable and highly nutritious protein sources but also offer nutritional variations that can be tailored to consumer needs. Increasingly knowledgeable consumers and easily accessible information have opened new opportunities for the development of innovative food products that meet public health needs. One product gaining interest for development is omega-3-enriched eggs. According to Kralik et al (2022), omega-3-enriched eggs have low yolk cholesterol levels, making them nutritionally and functionally more favorable than conventional eggs for human nutrition. Consuming omega-3-enriched eggs can reduce the risk of coronary heart disease, cognitive decline, cancer, and neurodegenerative diseases (Shahidi and Ambigaipalan, 2018). The demand for omega-3 eggs has recently increased due to the public's desire for healthy food and the education of some of the population on the benefits of consuming omega-3 eggs.

Initially, omega-3 eggs were marketed to specific groups, such as affluent, educated individuals with a history of degenerative diseases, infants, young children, and pregnant women. However, it is likely that more people will consume omega-3 eggs in the future due to their proven superior benefits. Therefore, to gain a deeper understanding of consumer needs for omega-3 eggs, research is needed to identify the market demand for omega-3 egg products in Bogor Regency. This research is expected to contribute positively to the development of an innovative and responsive egg industry that meets evolving market demands by developing more effective marketing strategies. It also provides information for producers to create products that meet high nutritional standards and consumer expectations.

MATERIALS AND METHODS

The research location was purposively chosen, namely, the Hari-Hari Dramaga supermarket, food stalls, and the general public around Dramaga, Bogor, considering service reach, the researchers' capacity, and product sellers at these locations. The research was conducted from July 1st to 25th, 2023, starting from the questionnaire preparation stage, when surveys were conducted with respondents, to data analysis.

The data collected in this research included primary and secondary data. Primary data included direct interview results with respondents using questionnaires about educational background, age, household size, household income, egg purchase expenditure, willingness to buy eggs, willingness to pay, egg purchase location, and packaging preferences. Secondary data include research data obtained indirectly through intermediaries or relevant institutions. The secondary data in this study are the population growth figures in Bogor Regency. The samples used in this study were collected from consumers of chicken eggs at the research locations. The sampling

method used in this research is the accidental method, where the sample is random or easily found, so the sample in this study consists of consumers who randomly meet the criteria as data sources. The respondent criteria for this study were individuals who had an income and chose eggs as a protein source.

A total of 30 respondents were successfully interviewed. The survey method was used in this research. The survey method is a research method where samples are taken from the population, and questionnaires are used as data collection tools (Nardi, 2018). The collected data were processed using Microsoft Excel.

RESULTS AND DISCUSSION

Overview of the Consumer Profile

The potential sales of omega-3 egg products were identified through surveys/interviews with potential consumers

who met purposively at supermarkets, food stalls, and the general public around Dramaga, Bogor. The survey results indicate that the profile of respondents as consumers/potential consumers of omega-3 eggs is predominantly women. The age range of consumers/potential consumers is between 20 and 40 years, indicating that this product is more popular among young adults. Survey results show that the majority of respondents' highest education level is postgraduate (master/doctoral), indicating that potential consumers have a high level of education, as they tend to be more concerned about health and nutrition, making them an ideal target market for omega-3 egg products. Additionally, 30% of respondents earn more than 5,000,000 IDR per month. This indicates that omega-3 egg products can target consumers with relatively high purchasing power. The complete consumer profile is presented in Table 1.

Table 1. Consumer profile overview

Profile	Category	(%)
Gender	Female	70
	Male	30
Age (Years)	20-40	40
	41-60	33,33
	>60	26,67
Education	High School	33,33
	Diploma I/II/III	3,33
	Bachelor's Degree	30
	Postgraduate (Master/Doctoral)	33,34
Income (IDR Million/Month)	≤ 2	16,67
	> 2-3	23,33
	> 3 -5	13,33
	> 4 -5	16,67
	> 5	30
Monthly Egg Expenditure (IDR Thousand/Month)	≤ 50	36,66
	> 50-100	26,67
	> 100	36,67

The table above shows that respondents' monthly expenditure on eggs is dominated by amounts exceeding the IDR of 100,000 per month, indicating that eggs are an essential part of the consumer's diet. This indicates that eggs are one of the most needed and regularly consumed food items by respondents. Eggs are a cheap and readily available source of animal protein, so many people choose to consume them regularly as

part of their daily diet (Kumolo et al., 2022). A significant expenditure on eggs can also indicate that consumers prioritize good nutritional intake, considering that eggs are rich in protein, vitamins, and essential minerals such as vitamins A, B, D, calcium, and iron. Additionally, eggs can be cooked in various ways, making them versatile for different dishes, such as omelette, boiled eggs, fried eggs, or as ingredients in various

other dishes. The variety in cooking methods also demonstrates the flexibility in meeting nutritional needs and consumer taste preferences. Therefore, the significant monthly expenditure on eggs reported by respondents reflects that eggs are not only ordinary food items but also an integral part of a healthy, affordable, and nutritious daily diet for many people.

Egg Purchase Locations

Survey results show that 37% of respondents often buy eggs at supermarkets. This indicates that most consumers prefer to buy eggs at supermarkets, likely due to factors such as convenience, accessibility, and wider product selection (Darmawan,

2022). For producers or sellers of omega-3 eggs, placing products in supermarkets presents a significant opportunity and a good strategy to increase visibility and sales. A diagram of the egg purchase locations is presented in Figure 1.

Furthermore, survey results show that 30% of respondents buy eggs at markets. Although slightly lower than supermarket purchases, markets remain a popular place for consumers to buy eggs, possibly because consumers trust the quality and freshness of products sold in traditional markets (Septiari and Sari, 2018). Moreover, 23% of the respondents bought eggs at food stalls, which could be due to shopping habits or the availability of more local products.

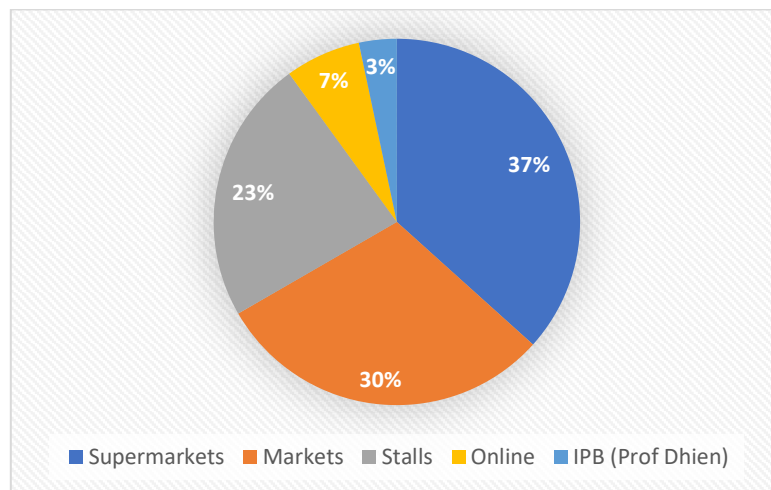


Figure 1. Diagram of egg purchase locations

Online purchases are becoming increasingly popular in the digital era. This is indicated by survey results showing that 7% of respondents buy eggs online. Although only a small portion of respondents choose this option, the trend of online purchases is likely to increase with the growth of e-commerce (Orinaldi, 2020). This represents a new opportunity for omega-3 egg producers to market their products online through websites, apps, or social media. Finally, the results indicate that only 3% of respondents buy eggs at other locations. This could be influenced by several factors, such as limited availability or lack of awareness about other egg purchase locations. Therefore, the results of

this survey show that placing omega-3 eggs in supermarkets and markets can be a good strategy for increasing sales and meeting consumer demand. Additionally, considering the trend of online purchases, omega-3 egg producers can explore online marketing and sales channels to reach more consumers and expand their market reach.

Determinants of Willingness to Buy Omega-3 Eggs

The determinants of willingness to buy omega-3 eggs refer to the factors influencing consumers' decisions to purchase eggs enriched with omega-3. The survey results indicate that 43% of respondents were willing to purchase more

than 12 omega-3 eggs in a single purchase. This figure reflects consumers' interest in increasing their omega-3 fatty acid intake

through common and accessible products such as eggs. The willingness to buy diagram is presented in Figure 2.

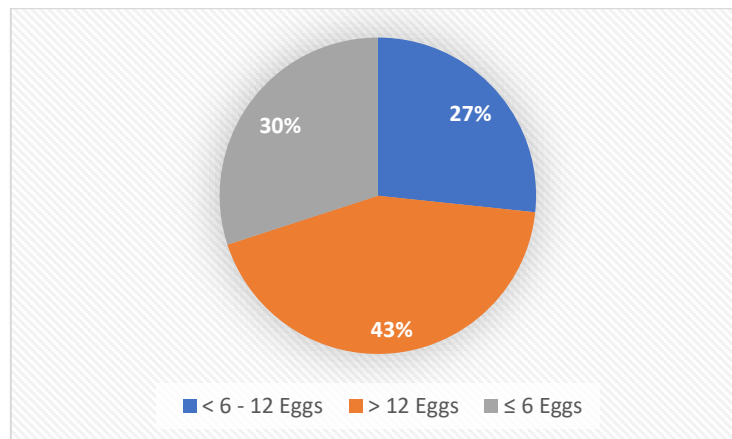


Figure 2. Diagram of Willingness to Buy Omega

According to Mulatsih et al. (2023), several factors influence consumers' willingness to purchase omega-3 eggs: (1) Health and nutritional needs: Consumers aware of the importance of omega-3 intake for the heart, brain, and overall health may be more inclined to purchase omega-3-enriched eggs.

This tendency is driven by their understanding of the health benefits associated with omega-3 fatty acids, making them more willing to buy a premium for products containing this nutrient. (2) Information and education: Consumers who have been informed about the benefits of omega-3 and how to obtain it from eggs are more likely to purchase omega-3-enriched eggs. Education on the importance of omega-3 fatty acids in a healthy diet can enhance consumer awareness and interest. (3) Price and Availability: The relative price and availability of omega-3 eggs compared to regular eggs can also influence consumer willingness to buy. If omega-3 eggs are

affordable and readily available on the market, consumers are more likely to choose them.

Determinants of Willingness to Pay

The determinants of willingness to pay for omega-3 eggs involve various factors that influence consumer behaviour in assessing the value of the product. One of the primary factors is the perceived health benefits associated with omega-3 eggs. Eggs rich in omega-3 fatty acids are recognized by consumers as products that can offer additional health advantages (Mulatsih et al., 2023). Consequently, a high percentage—50%—of respondents indicated their readiness to pay a higher price, specifically IDR 3000 per egg, which demonstrates that consumers associate additional health value with omega-3 eggs and are willing to provide greater financial compensation to obtain these benefits. The willingness to pay diagram is presented in Figure 3.

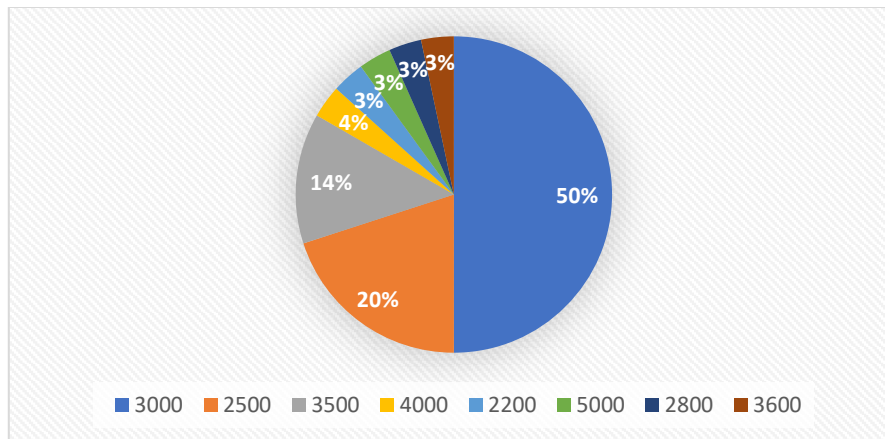


Figure 3. Diagram of willingness to pay (IDR/egg)

According to Wulandari (2020), other factors that might influence willingness to pay include education level, income, and health awareness. Consumers with higher education levels tend to be more aware of the health benefits of omega-3, and thus, they are more willing to pay a premium for such products. Similarly, consumers with higher incomes are financially more capable of allocating additional funds for products perceived to be beneficial for health. Additionally, factors such as personal preferences, perceived product quality, and influences from the social environment can also play a role in determining consumers' willingness to pay (Wibowo and Andi, 2019).

The influence of friends or family recommending a product can also affect consumers' decisions to pay. Therefore, the determinants of willingness to pay for omega-3 eggs involve a complex combination of psychological, economic,

and social factors that interact to shape consumers' perception of the product's value and their readiness to pay the set price.

Egg Packaging

Survey results indicate that more than half of the respondents (70%) expressed a preference for omega-3 eggs packaged in mica plastic. This suggests that practical, safe, and attractive packaging is also an important factor in meeting consumer preferences. In the context of omega-3 eggs, packaging with mica plastic offers several advantages that appeal to consumers. The use of mica plastic allows omega-3 eggs to be packaged efficiently, making them easy to carry home from storage or storage in a refrigerator. Consumers often seek convenience in their shopping experience, and practical packaging such as this can provide significant added value. The packaging design of the eggs is illustrated in Figure 4.

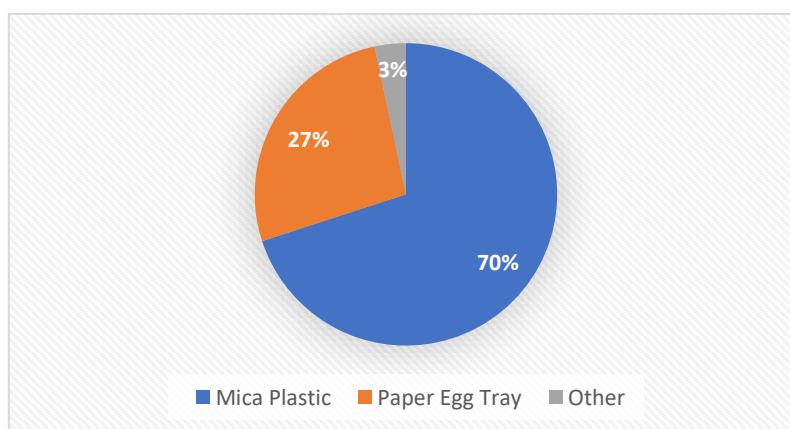


Figure 4. Diagram of Egg Packaging Preference

According to Iffathurjannah and Harti (2021), safety is a key factor considered by consumers when selecting food products. Packaging with plastic mica materials can provide excellent protection for omega-3 eggs against physical damage and contamination. Plastic mica is typically resistant to moisture, air, and light, which helps maintain the freshness and quality of the product. In the context of eggs, effective protection against damage and contamination is crucial for ensuring food safety and preventing the spread of foodborne diseases (Rumondor and Tamasoleng, 2022).

Additionally, aesthetic aspects cannot be overlooked in meeting consumer preferences. Packaging with plastic mica often has an attractive and transparent appearance, allowing consumers to see the product directly before purchasing it. This can enhance the visual appeal of the product and make it stand out on store shelves. The attractiveness of packaging can influence consumers' perceptions of the quality and value of the product, thus becoming an important factor in purchasing decisions.

Overall, consumer preference for omega-3 eggs packaged in plastic mica highlights the importance of practical, safe, and appealing packaging for meeting the needs and desires of modern consumers. While plastic mica packaging offers several advantages in terms of practicality, safety, and aesthetics, it is important to consider the environmental impact of using plastic materials and to seek more sustainable solutions for the future.

CONCLUSION

The study results show that omega-3 eggs have high potential for use in the market in Bogor Regency. The majority of respondents were willing to buy omega-3 eggs in large quantities, with a price preference of Rp 3,000 per egg. Most consumers buy eggs at supermarkets, indicating a significant opportunity for product placement in major retail stores. Practical packaging with plastic mica is

preferred by 70% of respondents due to its practicality and efficiency. These findings suggest that omega-3 eggs can be developed in Bogor Regency to meet market needs and offer promising business opportunities. Producers can set approximately Rp 3,000 per egg, place products in supermarkets, and use practical plastic mica packaging to meet consumer expectations and increase sales. Further research is needed to explore other factors that may influence consumer preferences and demand for omega-3 eggs. Additionally, producers should consider developing marketing strategies to raise awareness and educate consumers about the benefits of omega-3 eggs to increase demand and market reach.

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