Analysis of factor affecting goat milk consumptions in Binjai City

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Abstract. The study aims to determine the factors that influence the interest of the people of Binjai City to consume goat milk, as well as the relationship of age, education, employment status, income level, and level of preference for consumer perceptions. This research was conducted from June 2017 to July 2017 using a survey method to consumers of goat milk. The results of this study were 68.4% of the people in Binjai City had a good perception of consuming goat's milk, where the remaining 31.6% had an inappropriate perception in consuming goat's milk. Where the variables that affect the interest in public consumption are occupation [0.016] and preference level [0.001], while the education variable [0.053], income [0.845], and age [0.107] do not affect people's consumption interest in Binjai City. The conclusion of this study shows that occupational factors and the level of preference affect the perception of public consumption of goat's milk consumption in Binjai City.

1. Introduction
Goat milk is the main product of dairy goats and can be a source of income. Goat's milk and its products are essential nutrients for humans: giving food and nutrition to malnourished people in developing countries, treating people suffering from cow's milk allergies and digestive disorders, meeting the gastronomic needs of connoisseur consumers, which is a growing market share in many developed countries [1]. Etawa Goat is a commodity that has good development prospects because it has a high level of production in Indonesia. The population of goats in the city of Binjai in 2016 was recorded at 7,201 head increasing to 7,529 head in 2017 head [2]. East Binjai Regency is one of the sub-districts in the Indonesian state of Binjai City, which is commodity based on goat livestock. Development of dairy goats in East Binjai Regency has high potential because it is supported by an appropriate climate and accessibility to various consumer areas. In the future, farmers must choose an agricultural system or feeding according to trade conditions, consumer demand and socio-economic conditions, finding a balance between the level of intensification and quality of dairy products [3].

During the last 20 years, the number of goats around the world is increasing (by about 60%) but also in those with high (20%) or intermediate (25%) income [4]. In Indonesia, goat milk has a higher price than the price of cow's milk. Marketing is based on the concept that consumers are the most important people. Then the concept provides and identifies various fulfills of consumer needs. In this concept, customer satisfaction is the meaning of the development and performance of traders to survive. Consumer-oriented companies will focus on what they want to buy [5]. Goat milk is a beverage that is considered to be able to provide human body needs for calcium, protein, fat, and...
minerals. One option besides cow's milk is goat's milk. Current milk consumption in Indonesia is around 15 liters per capita per year, and more than 70% of milk and dairy products are imported from other countries such as Australia and New Zealand. [6] Despite the recent popularity, the contribution of goat milk to total milk production inside the country is still very limited. Some regions, goat's milk is very valuable with a price of two or even three times higher than the price of cow's milk [6]. The level of consumption of goat's milk is also lower than cow's milk. Based on this, further research is needed on the analysis of factors that influence the interest of the people of Binjai City on goat milk consumption and the most optimal consumer factors of goat milk.

2. Methods
The method used in this study is a survey with direct interviews with respondents guided by questionnaires. The sampling technique that is used is based on personal considerations and the sample chosen. The criteria for consumers are the people of Binjai city who buy goat milk. The number of samples taken was 111 people. The number of milk sellers in Binjai District is 22 people and the area studied is Binjai sub-district.

3. Results and Discussions
Consumers used for respondents in this study are consumers who come to dairy goat farmers and buy goat milk for consumption. Related consumer testing provides information about consumer preferences and buying behavior [7]. These variables will then be tabulated based on the percentage of the total number of respondents

3.1 Age
Age is divided according to the categories set by the statistical center bureau in 2016. The results of the study revealed that the majority of respondents were in the age range [26-45 years]. This age stage is the most productive period in the human life cycle; Age data can be seen in table 1.

| Age       | Amount | Percentage [%] |
|-----------|--------|----------------|
| < 11 years| 25     | 22.5           |
| 12 – 25 years | 24    | 21.6           |
| 26 – 45 years | 36    | 23.4           |
| 45 years > | 26     | 32.4           |
| Total     | 111    | 100            |

Age is an essential demographic characteristic to know because age differences cause differences in tastes and preferences for a product [8]. Gender, age, and motives behind the choice of food influence the pattern of preferences for those evaluated [9].

3.2 Level of Education
Based on the education level, most of the respondents who participated in this study had education level and above high school. The researcher assessed that with these results, the respondents in the study had sufficient education so they could understand the questionnaire during data collection. Education level data can be seen in table 2.

| Education      | Amount | Percentage [%] |
|----------------|--------|----------------|
| Primary School | 25     | 22.5           |
| Junior High School | 4     | 3.60           |
The level of education will be related to the amount of information and will influence a person's decision to make a purchase. The higher the level of education, the consumer will be more responsive in processing information [10].

3.3 Profession status
The type of work will affect a person's income level, and then it is thought to influence the consumption pattern and the process of purchasing decisions for a product for that person.

| Profession Status | Amount | Percentage [%] |
|-------------------|--------|----------------|
| Students          | 34     | 30.60          |
| Entrepreneur      | 39     | 35.10          |
| Officer           | 38     | 34.20          |
| Total             | 111    | 100            |

Consumers who have professions as employees earn a higher income than entrepreneurs and students. Whereas consumers who have professions as employees have more education levels compared to consumers who still work as students. There is a difference between consumers who have a profession and those who do not have jobs. Consumers who have jobs have a higher level of income and preferences than consumers who do not have professions.

3.4 Income Level
Researchers often have difficulty obtaining data on income from respondents. Respondents feel uncomfortable if they have to disclose the income they receive, and some feel that income is a very personal thing, so it is very sensitive if known to others. To overcome this problem, this study uses another method of measuring a consumer's income, namely through a monthly expenditure approach [10]. The results of the study showed that on average respondents had sufficient income levels, so they were able to consume goat's milk. Some respondents have jobs with a high level of education for high levels of preference for consuming goat's milk. High income factors and undergraduate degrees have a higher income than conventional ones, so they can pay and are willing to buy at a higher price [11].

| Income               | Amount | Percentage [%] |
|----------------------|--------|----------------|
| < 500.000            | 33     | 29.70%         |
| 500.000 – 1,500.000  | 5      | 4.50%          |
| 1,500.000 – 3,000.000| 44     | 39.60%         |
| 3,000.000 – 5,000.000| 27     | 24.30%         |
| 5,000.000 >          | 2      | 1.80%          |
| Total                | 111    | 100            |

3.5 Level of consumer preference
The level of preference in determining consumption decisions is made by consumers. The high level of preference for a product can be an incentive for consumers to consume goat's milk. Food
preferences serve to predict food choices in consumer research and marketing and are considered as a measure for food selection. [11-14] Diet habits usually predict, and frequency of food may correlate with each other. Data on the level of preference for goat milk like 46.80% and very like 38.70%. Taste is the main criteria used by consumers to make decisions to purchase and consume goat milk and its products [15]

3.6 Consumer Perception of Consuming Goat Milk
The magnitude of the perception score was measured by the average scoring method obtained from the sum of the questionnaire scores with values between 1 [strongly disagree] to 4 [strongly agree]. Consumer perception is considered good if it has an average value above 1.5.

3.7 Consumer Perception Viewed From Aspects of Marketing Mix

3.7.1 Product Aspect
Perception of a product will arise due to the stimulus received by the senses. The product referred to in this study is goat milk, where the respondent will be asked for a statement in consuming goat's milk based on nutritional content, aroma, and taste. Based on the results of the study, respondents had a good perception of consuming goat's milk, both in terms of the benefits obtained, the nutritional content of goat's milk, and the aroma of the goat's milk. The range of scale of perceptions of respondents consuming goat milk strongly disagree 12.4%, disagree 19.1%, agree 11.7% and strongly agree 56.8%

3.7.2 Price Aspect
Based on the study, respondents had a good perception of the price of goat milk, according to respondents, the price of goat milk ranged from IDR. 50,000 - IDR. Eighty thousand are still quite affordable compared to the price of formula milk they have been consuming so far. The scale of respondents' perceptions of the price of goat's milk: Strongly Disagree 11.2%, Disagree 10.6%, agree 37.9% and strongly agree 40.3%

3.7.3 Market Aspect
The ease of obtaining a product becomes one of the factors that influence consumer demand for a product. Location of sales is one of the important things that need to be considered in marketing a product. The range of respondents' perceptions of the location of selling goat's milk: Strongly Disagree 27.6%, Disagree 33.8%, agree 23.1% and strongly agree 16.3%

3.7.4 Promotion aspect
Goat milk is a healthy drink that can be promoted through media products through advertising, distribution, and by improving customer service [16]. Based on the results of the study, the public perception of the promotion of goat's milk is bad. People consider the promotion of goat's milk is still rare when compared with cow's milk or formula milk, which can easily be known from advertisements in print or electronic media. Promotion of consumer perceptions, identification of appropriate distribution and marketing channels forth the establishment of a successful and profitable goat's milk industry [17] The range of scale of respondents' perceptions of promotion of goat's milk: Strongly Disagree 32.1%, Disagree 28.7%, agree 22.6% and strongly agree 16.6%. Promotion of goat's milk has only been through brochures.

3.8 Analysis of Factors Affecting Goat's Milk Consumption
Logistic regression analysis can be used to analyze consumer behavior towards fresh goat milk [18]. Logit method to determine the factors that influence the level of consumption of goat's milk with non-free variable [Y] which is divided into two, namely Y = 0 [bad] Y = 1 [good]. While the
independent variable is divided into five variables, namely age, education, employment, income, level of preference.

Based on the results of the study, of 111 respondents 76 [68.4%] said they agreed to consume goat's milk and 35 [31.5%] people said they did not agree to consume goat's milk. The estimated results of the logistic model show that at the 95 percent confidence level, the Hosmer and Lemeshow Test significance values are 0.423. This value is greater than the alpha value of 0.05. This shows that overall the model is quite good, meaning that there is at least one independent variable that has a significant effect [the coefficient value is not equal to zero] to the factor of consumption of goat milk in Binjai City. The percentage of the truth model predicting the factors that influence the consumption of goat milk is 66.5%

This means there is an error of 33.5% in predicting factors that influence the consumption of goat's milk using the independent variables [variable X] mentioned above. The variables that significantly influence the factors that influence the consumption of goat's milk are variables that have a significant value below the alpha value of 5 percent [0.05]. The income, age, and education variables that have no significant influence on the factors that influence the consumption of goat's milk. This is because the variable has a P-value [Significant] greater than the specified alpha, which is 0.05. The influence of each of these variables will be explained as follows. P-value is greater than 0.05, so it does not significantly influence the consumption of goat's milk. Where it is known that $\beta_1 = -0.742$ thus obtained $\exp\left[-0.742\right] = 0.476$ [47.6%] which means that for each age increase, the odds forage status will increase by 47.6% in the fixed education variable. P-value is greater than 0.05, so educations do not have a significant effect on the consumption of goat's milk.

Estimation results of logistic regression on variables that influence consumption of goat's milk. P-value is smaller than 0.05 so that the work has a significant effect on the consumption of goat's milk. Where it is known that $\beta_3 = -1.465$ is obtained $\exp\left[-1.465\right] = 0.231$ [23.1%] which means that for each addition of work, it is estimated that the odds for employment status will increase by 23.1% in the fixed variable. Based on the logistical results in the table, the P-value is greater than 0.05, so that income does not have a significant effect on the consumption of goat's milk. Based on the logistical results in the table, the P-value is smaller than 0.05 so that the level of preference has a significant effect on the consumption of goat's milk. Respondents with a habit of preference for goat's milk became the influence of a consumer consuming goat's milk.

4. Conclusion
The results of the study found that 68.4 percent of respondents had good perceptions of consuming goat's milk while 31.6 percent of respondents said they did not agree to consume goat's milk, where occupational factors and level of preference were the factors that most affected it.

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