QUALITY CONTROL OF EDIBLE BIRD'S NEST PRODUCTS AT CV. DILLAH PUTRI

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ABSTRACT

The efficacy of edible bird's nests has long been known, especially in China. However, not all species can produce good quality nests. The quality of edible bird's nests is usually determined by the purity of the saliva. To improve the quality of these nests, practical knowledge about processing or cultivating swiftlets is needed. So far, swiftlet cultivation in Indonesia is commonly based on knowledge from previous generations. This is due to a lack of information and knowledge about swiftlets. The quality of edible bird's nests needs to be maintained to meet the needs of consumers or buyers who demand a good quality bird's nest. This study uses qualitative methods by interviewing 4 informants i.e. an expert in bird's nest cultivation, a consumer, a production staff, and the owner of CV. Dillah Putri. Based on the results of the study, CV. Dillah Putri needs to conduct the following actions in order to control the quality of edible bird's nests after harvest: 1) Control the bird house every 2 weeks or when the swiftlets start to nest. 2) Control the humidity of the bird house every week to make sure the swiftlets are comfortable and to make it as similar to the natural habitat. 3) Check the security of the bird house to avoid predators such as snakes, cockroaches, lizards and monitor lizards every 2 weeks. 4) Check amplifiers and speakers that function as swiftlet callers to nest biweekly. 5) Clean bird's nest from dirt after harvest.

***Keywords**: control, product quality, edible bird's nest.*

INTRODUCTION

Berbeas Tengah, an area in Bontang Selatan, East Kalimantan, has bright prospects when it comes to developing edible bird's nest business. This is due to the price, export, and product development aspects, where after the swiftlets produce the nests, the edible bird's nests can be exported directly to Hong Kong, Singapore, and Taiwan at a price of around 17 million to tens of millions per kg and the waste is sold to small traders and middle to upper class communities with revenues of around 15 million/month. In a year, the average edible bird's nest entrepreneur can produce around 8 kg to 10 kg. However, not all species can produce good quality nests. The quality of edible bird's nests is usually determined by the purity of the saliva. Based on the selling value, the red bird's nests are the most expensive ones, followed by white bird's nests, yellow bird's nests, blue bird's nests, and black bird's nests. The predominant factor in this business is the production of nests produced from swiftlets' saliva. To have a high production rate and produce high-quality products, a good handling or maintenance management is needed from all aspects of maintenance. Making or building a purpose-built structure that serves as a bird house that is comfortable for swiftlets and is evenly distributed, balanced and stimulates swiftlets to produce more.

The quality of the bird's nests need to be maintained to meet the needs of consumers or buyers who demand a good quality bird's nest. Even though the low-quality nests can be sold, the price will be much lower because it is not in accordance with the needs of consumers or buyers. Therefore, if the product quality can be maintained, sales revenue will also increase. Based on these phenomena, the author conducted an evaluation on how to maintain the quality of bird's nest products at CV. Dillah Putri. This study is entitled "**Quality Control of Edible Bird's Nest Products at CV. Dillah Putri**".

PREVIOUS STUDY

A research by Ohsima (2010) aimed to find out the importance of quality control in the production process of polymer products. The variables studied include: polymer production plant; quality control;

on-line soft sensor; grade changeover operation; blending operation. This research used qualitative methods. Sources are obtained from literature review by examining previous studies, as well as collecting data through observations on quality control and polymer production processes. The results of the study stated that quality control is very important because it will affect the quality of the products that will be marketed to the community. If the quality of the product is not up to the standard, it will affect the buyer's perception.

A research by Perrot (2010) aimed to analyze the importance of quality control in food production by applying Fuzzy Concept. The variables used in this study are Food processes; Fuzzy logic; Control; Quality; Review. This research used qualitative methods as well. Data
sources were obtained from literature review by examining previous studies on Fuzzy Concept, as well as collecting data through observations on food quality control and fuzzy concepts. The results showed that food quality control using Fuzzy Concepts was proven to produce good outputs where most of the products did not experience any type of damage during production.

LITERATURE REVIEW

The definition of product, according to Kotler (2012), is everything that can be offered to the market to get attention, be bought, used, or consumed that can satisfy desires or needs. Conceptually, a product is a subjective understanding of the producer for something that can be offered as an effort to achieve organizational goals by meeting the needs of consumers, in accordance with the competence and the capacity of the organization while also considering the purchasing power of the market. According to Kotler (2012), product is the key element in the overall market supply. In addition, product can also be defined as consumer perception described by producers through their production (Tjiptono, 2012).

According to Kotler (2012), quality is defined as the overall characteristics and properties of goods and services that affect the ability to meet stated and implied needs. Meanwhile, according to Tjiptono (2012), quality is a combination of the nature and characteristics that determine the extent to which the output can meet the prerequisites of customer needs or assess how far the nature and characteristics meet their needs.

Swiftlet is a kind of insectivorous bird that makes a nest from its saliva. Swiftlet's nest has long been consumed and become the pride of the nobles and kings. Hence, this nest is expensive. The value is not the only reason as to why people hunt these nests in caves, but also because these nests are very beneficial for human health (Alhaddad, 2010).

Swiftlets are spread throughout most continents, except the Antarctic and Australian continents (found only in the northernmost part of Australia). Until now there have been around 80 species of swiftlets that have been found.

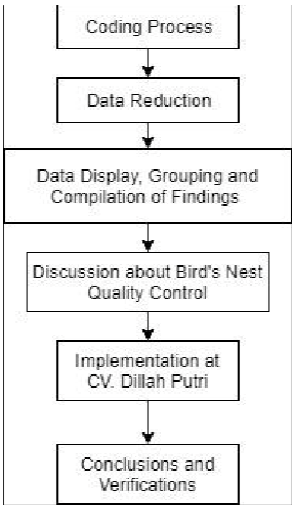

Figure 1 Analysis Model

Source: processed data, 2018.

RESEARCH METHODS

TYPE OF RESEARCH

This research is conducted using qualitative research methods. According to Sugiyono (2012) qualitative research methods are research methods used to examine the condition of objects that are

natural, (as opposed to experiments) the researcher is the key instrument, inductive data analysis, and qualitative research results that put more emphasis on meaning rather than generalization.

RESEARCH LOCATION AND TIME

The location used by the researcher in this study is Bontang because the object of research, researcher's own business, is in that area. This research is carried out from February 2018 to June 2018.

RESEARCH SUBJECT

The research subjects in this study are determined by using purposive sampling method. Purposive sampling is a sampling technique with certain considerations (Sugiyono, 2012). This study uses purposive sampling so that the sample criteria obtained are truly in accordance with the research conducted and are able to explain the actual situation of the object under study. The subjects in this study are the owner of CV. Dillah Putri, the production staff, and an expert in bird's nest cultivation.

DATA COLLECTION METHODS

Data collection was carried out from February 2018 to June 2018. Data collection methods used in this study are observation, interviews, and documentation.

DATA VALIDITY

The validity test of the data in the study is often only emphasized in the validity and reliability test. In qualitative research, findings or data can be declared valid if there is no difference between what the researcher reported and what actually happened to the object under study. According to Sugiyono (2012), the validity test of the data in qualitative research includes credibility tests (internal validity), transferability (external validity), dependability (reliability), and confirmability (objectivity).

ANALYSIS

Miles et. al. in Sugiyono (2012), stated that activities in qualitative data analysis must be carried out continuously until complete, so that the data is saturated. To present data so that it is easy to understand, the steps of analyzing the data used in this study are the Interactive Analysis Model from Miles et. al. (2014) which divides the steps in data analysis activities into several parts, namely data collection, data reduction, data display, and conclusions or verifications.

GENERAL DESCRIPTION
RESULTS AND DISCUSSION

CV. Dillah Putri is a business specializing in bird's nest cultivation which has been established for 10 years. CV. Dillah Putri started cultivating swiftlet nests in Bontang, East Kalimantan. CV. Dillah Putri already has a strong brand image because it is the third largest bird's nest cultivation business in Bontang, but there is instability in the quality of the edible bird's nest products. Interviews with research subjects are divided into several categories to better explain the statement of the subjects as to deepen the discussion process so researchers can gain an insight in terms of finding the best strategy to control the quality of edible bird's nest products at CV. Dillah Putri. The categories are: initial bird's nest cultivation, bird house management, different types of bird's nest products quality, bird's nest harvesting processes, and quality control of edible bird's nest products.

DATA DISCUSSION Edible
Bird's Nest Quality

According to Kotler (2012), the characteristics of the quality of a product that is "reliable" must have multi dimensions because it must provide satisfaction and a great value of benefits for consumers through various ways. Therefore, each product should have a measurement that is easy to calculate so that consumers can easily search for products according to their needs. However, qualitative measures such as trendy colors and interesting shapes are also important. Based on the results of data analysis, consumers stated that the quality of the products of CV. Dillah Putri is relatively similar to other competitors'. This is due to the same influencing factors that occur in the area. These factors come from nature and also from the purpose-built bird house.

Dolorosa's (2012) study states that the quality of edible bird's nest products is influenced by several factors including internal factors, external factors and quality control. Similar to the study of Dolorosa (2012), Colledani's (2012) study also states that quality control process is very important when it comes to ensuring the quality of a product. With product quality that is relatively the same as competitors, CV. Dillah Putri excels in this cultivation business because it has more than 4

purpose-built bird houses and CV. Dillah Putri is the third largest edible bird's nest cultivation business in the area.

Initial Bird's Nest Cultivation

Based on the results of interviews, the expert in swiftlet bird's nest cultivation suggested self-study of swiftlet nest cultivation and learning with an experienced cultivator who already has a large bird's nest business. Taking seminars, reading books, and gathering with other entrepreneurs can be done to add insight and experience about bird's nest cultivation. The expert explained that not all insights on techniques or experiences given or notified by books, seminars and other entrepreneurs can be successfully applied in every purpose-built bird house. This is because each bird house has different environment, temperature and humidity levels.

Alhaddad (2010) states that the most important thing in swiftlet bird's nest cultivation is that business owners need to participate in finding ways to cultivate in the form of reading books, joining bird's nest communities, and attending a seminar on how to manage a bird's nest business. CV. Dillah Putri is engaged in edible bird's nest business because one day, out of nowhere, swiftlets nested in the building which was originally for furniture business. CV. Dillah Putri quickly looked for insights regarding the management of swiftlet nests after ensuring that the birds that nested in the building were swiftlets.

Bird House Management

According to Alhaddad (2010) the management of swiftlet nests consists of maintaining the security of the nests; cave mouth care, and treatments outside the cave mouth; swiftlet nest management system; establishment of suitable huts; as well as ways of harvesting the bird's nest from swiftlets.

Based on the results of data analysis, the process for swiftlet cultivation is not easy. The cultivator must first survey the location by testing whether the swiftlet colonies exist or not. The best way to assess a location is by discovering swiftlet habitat. Testing whether or not there is a swiftlet habitat can be done by carrying an amplifier, and then turning on the speaker and playing the sound of a swiftlet. If a flock of birds are seen, it's proof that there is a colony in that location. Next, build a rectangular purpose-built structure with a size of 6 meters wide and
10 meters long with a minimum distance of 3 meters to 6 meters for each structure. After the structure has been completed, the arrangement of equipment such as plastic bird's nests, upper and lower bulkheads must be done. The most important thing is the humidity regulation in the structure so that the swallow is comfortable when nesting. Swiftlet nests really need a damp place with the required room moisture level of around 85% -95%. Suitable room temperature is between 25oC – 29oC. Swiftlets want a location that is quiet, safe, and unpolluted with air pollution (Budiman, 2010). Installation of board fins or places for nesting birds must be adjusted to the direction of swiftlet colonies. Amplifiers and speakers are prepared to summon swiftlets to nest. After that, business owners need to wait for about 2 weeks. If signs such as the presence of spiders' nests, several colonies, and small swallow nests are seen, it can be concluded that swiftlets have started nesting in the building. Building maintenance must be carried out periodically by spreading swiftlet's droppings so that the swiftlets are comfortable and regulating the humidity of the building to match the body temperature of the swiftlets.

Types of Bird's Nest Products Quality

Based on the results of data analysis, there are several qualities of bird's nests. Swiftlet nests that have good quality have the characteristics of no fur, clean, whole, and white. Even though the low-quality nests can be sold, the price will be much lower because it is not in accordance with the needs of consumers or buyers. Types of swiftlet nests according to Trubus (2010) include white nest, black nest, mossy nest, mountain swiftlet nests and large nests. CV. Dillah Putri has harvested several types of nests that include triangle-shaped nests, bowl-shaped

1, bowl-shaped 2, broken and mixture. Swiftlet nests that have a whole shape and have white and clean colors have the highest selling value, which can be higher than Rp. 18,000,000 per kilogram.

Harvesting Process of Swiftlet Nests

With the procedure for harvesting swiftlet nests described by Walet (2017) by conducting selective harvesting, business owners must choose the nest that is perfectly shaped and there are no eggs or nestlings in the nest. In carrying out the harvesting process, it is necessary to adjust to local conditions,

for example the seasons associated with hatching, time, bird house conditions, etc. The expert in swiftlet nest cultivation and the manager of CV. Dillah Putri harvest at least once a month. This is different from 10 years ago where in 2 weeks the company was able to harvest abundant output. In 2018, the total number of swiftlet bird houses amounted to 400 pieces spread throughout Bontang so when harvest time came, there were not too many bird's nests obtained.

There are several factors that affect the harvest, one of which is egg, as said by the production staff, the eggs have an effect on a harvest because if there are still eggs in the bird's nest, then the bird's nest cannot be harvested. If the egg is taken, then the mother bird will look for where the egg is and will not re-nest in the same bird house. The second factor is the weather. The weather also affects the harvest because the harvest process can be delayed because of the weather. The condition of the bird house is also a factor that might delay the harvest process.

The harvest process of CV. Dillah Putri and the cultivation expert is traditionally done. To reach swiftlet nests, employees use stairs and it has to be done carefully. They also need to bring a sharpened knife to harvest swiftlet nests inside the bird house. If the bird's nest is found dry, the employee must spray the nest first so that the nest does not break. Broken swiftlet nests have lower prices than whole swiftlet nests. Employees must utilize the flashlight on the helmet because the inside of the bird house is dark as to keep the bird house humid.

Based on the results of data analysis, employees involved in the harvest process must be experienced and already know good harvest methods. The employees must have prior training before harvesting swiftlet nests. The employees must also use the tools and equipments in the bird house. New employees are usually only allowed to see and learn from employees who are experts. When they are ready to harvest the nests, they will be supervised by the experienced employees until they get the hang of it.

Perrot (2010) states that quality control must be done to maintain the quality of the products so that consumers will get high-quality products. After harvesting swiftlet nests, employees must classify the types of swiftlet nests based on their quality and shape. The form of the nest can be in the form of broken, bowls and triangle. The quality of swiftlet nests is determined by the color and cleanliness of the nest. Swiftlet nests' color that has a high selling value is pure white, while the worst is black. Once grouped, production staff must clean and dry the nests that are somewhat wet because if the bird's nest is dry it will be easily cleaned of fur and dirt. After drying and cleaning of feathers and sticky dirt, swiftlet nests will be put into a special box and then stored in a room with regulated humidity. The storage of swfitlet nests must only be done for a maximum of 3 months.

Edible Bird's Nest Quality Control

Prime quality products will indeed be more attractive to consumers and eventually can increase sales volume. But according to Prawirosentono (2010), prime quality products have other important aspects, namely: 1) Consumers who buy products based on quality generally have a bigger product loyalty compared to consumers who buy only because of the price; 2
Contradictory to traditional business thinking, it turns out that producing quality goods does not automatically cost more than producing low quality products; 3) Selling low-quality products will likely result in a lot of complaints and return goods from consumers.

Based on the results of data analysis, the association explained some ways to improve the quality of edible bird's nest products, namely by throwing away the eggs. But throwing away the eggs will decrease the breeding process of swiftlets in the bird house. Apart from the decrease in the breeding process, the parent swiftlets might not nest again in the bird house. Prime quality bird's nest can be obtained in several ways. The expert in bird's nest cultivation and the manager of CV.Dillah Putri said that the manager must fix and renovate the bird house. The bird house must be ensured to be safe from egg hunters and predators. These predators can be snakes, monitor lizards, geckos and lizards. Amplifiers and speakers must always be checked after harvesting so that any damage can be contained immediately. The spread of swiftlet droppings is carried out after harvest so that the birds will return to the bird house to nest since it is comfortable for them.

The cultivation expert and the manager alike agree that humidity is an important factor to consider to maintain the quality of swiftlet nests. Bird houses with humidity level that is in accordance with the natural habitat of swiftlets results in a bird's nest that is not too dry or not too wet so that harvesting process will be much easier.

When the harvest is undergoing, it's obvious that not all products will have prime quality. To

solve this problem, products must be sorted. Low-quality products will be sold at lower prices and mixed with other products. After knowing the conditions of the harvest, the edible bird's nest business owners must evaluate factors such as humidity regulation and the condition of the building. The solution given by the other producers of edible bird's nests for poor product quality or finding faulty harvests is to sell these types and categorize them as mixed or broken.

Good product quality certainly affects sales volume. If the product quality is stable, the sales volume will be stable. If the product quality is excellent, the sales volume will increase.

However, if the product quality is bad, of course sales volume will decrease. CV. Dillah Putri strives to maintain and control the quality of edible bird's nest products and improve product quality by maintaining the bird houses and always checking and regulating the humidity.

MANAGERIAL IMPLICATIONS

The quality control of edible bird's nest products that the researchers have found is based on Walet (2017) which states that there are several ways to maintain the prime quality of edible bird's nest products. Quality control of edible bird's nest products provided by Walet (2017) includes:

1. Inspect the building at least twice a month.
2. Pay attention to the humidity of the swiftlet bird house regularly.
3. Inspect the security of swiftlet bird house from pests and predators at least twice a month.
4. Pay attention to the equipments in the bird's nests such as speakers and amplifiers.
5. Check the nest when cleaning it from dirt.

Based on the results of the study, CV. Dillah Putri must do the following in order to control the quality of its edible bird's nest products before harvest. The implications are as follows:

1. Inspect the bird house every 2 weeks or when the swiftlets start to nest.
2. Check and regulate bird house humidity every week to make the swiftlets comfortable and to make it as similar to the natural habitat.
3. Ensure the security of the bird house from predators such as snakes, cockroaches, lizards and monitor lizards every 2 weeks.
4. Clean bird's nest from dirt after harvest.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

As explained in previous chapters, this research was conducted to find out how to control the quality of edible bird's nest products at CV. Dillah Putri. Things that can be done to control the quality of edible bird's nest products are by inspecting the bird house every 2 weeks or when swiftlets start nesting, checking and regulating the bird house humidity every week to make the swiftlets comfortable and to make it as similar to the natural habitat, and ensure the security of the bird house from predators such as snakes, cockroaches, lizards and monitor lizards. It is also necessary to clean the bird's nest after harvest from the dirt and pests in the bird house and to spray the house with a liquid mixed with swiftlet's saliva so that the swiftlets would want to nest back in the bird house.

RECOMMENDATIONS

Based on the results and the conclusions of this study, the researcher can provide the following recommendations: 1) For the company. CV. Dillah Putri must strive to maintain the quality of its edible bird's nest products and improve product quality by checking and regulating the humidity in the bird house. 2) For future researchers. For further research, it is recommended to use quantitative methods to determine consumer perceptions of the quality of edible bird's nest products at CV. Dillah Putri.

RESEARCH LIMITATION

In this study, there are limitations to the research related to the process of controlling product

quality, not on inputs for controlling product quality but in the process of swiftlet nests cultivation. This study was conducted to determine the process of controlling edible bird's nest products at CV. Dillah Putri that cannot be generalized to other industries.

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