

LIFE CYCLE IMPACT ASSESSMENT AS PRODUCT QUALITY CONTROL TOOL

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ABSTRACT

The concept of modern marketing teaches that the differentiation of market needs, where the product should be marketed and for whom the product is made. Products sold in the market must have a competitive advantage depending on their production management and from the service (distribution and marketing) to be delivered (consumer satisfaction). The amount of benefits obtained by consuming organic farming results make organic food producers have the opportunity to produce quality agricultural products and environmentally friendly. This is also done by Qaryah Thayyibah from Al-Barokah Farmers of Ketapang Village which is no longer dependent on chemical fertilizers. This study aims to find out how far a product will be accepted and made superior by its customers and how the product is able to compete competitively through the assessment of product life cycle. Stages or cycles that can help business owners to know and analyze clearly the extent to which the resulting product can survive in a competitive manner is Product Life Cycle or product life cycle classified in introduction, growth, atury, decline, and termination. The concept of product life cycle can be utilized by the business owner in order to understand the product and the market. This concept can help clarify marketing challenges at every stage and alternative strategies that any business can use. As the market grows, production increases, and business leaders can find more efficient and cheaper production methods, the cost can be smaller, so it can focus on creating more sales and profits. As a control tool, this concept helps business owners in comparing achievements with similar previous production. The lifecycle pattern is the result of various marketing strategies that have been determined in a business. Therefore, every business needs to know the different stages of product life cycle and understand that all the products they sell have age restrictions. Business owners will invest in new product development in order to ensure that their business continues to increase. Life cycle application Impact Assessment includes life cycle line, product category life cycle, product life cycle product, individual product life cycle and brand life cycle. Thus the key to success in business not only understands the product life cycle, but also proactively manages products, implements appropriate resources, sales and marketing strategies.

Keywords: Product Life Cycle, Life Cycle Impact Assessment, Achievement Strategy

INTRODUCTION

Background

Enterprises in the field of organic rice farming are generally risk-averse businesses, especially with regard to price certainty, weather and climate disruptions, marketing and product sales. The field of modern marketing also teaches the differentiation of market needs, where the product should be marketed and for whom the product is made. Products sold in the marketplace must have comparative and competitive advantages. Comparatively, consuming organic rice makes the body healthier because it is produced from cultivation that does not use chemicals.

While the competitive advantage depends on the management of production and the service (distribution and marketing) to be given (consumer satisfaction). In terms of production management, organic rice produced from the Ketapang area feels better because it smells more fragrant and cleaner because it flows from the volcano's clear springs.

But a business can never run well if no one buys the product. While there are a lot of competitors out there who always come up with new ideas and innovation. This causes the consumer to have many choices. So far, Qaryah Thayyibah has not done well in the process of storing finished goods, including the flow of goods in and out of storage, has not been able to meet the number of orders from consumers, and still a lot of returns from consumers. Yet organic rice products are very potential to be developed.

Therefore, it is needed to improve the production process of Qaryah Thayyibah from internal and external side so that the process of production, logistics, distribution, inventory stock, invoice, finance and accountancy can be well integrated, and analyzing the product's storage and product lifecycle so that the weakness of production process and the ability to supply the product can be resolved. Moreover, as long as this organic rice businessman has never conducted an evaluation of the environmental impacts generated during the life cycle. For that we need a system used to know the level / level of products in the life cycle (Product Life Cycle). Product life cycle can provide an indication of the development of a product that is acceptable to the consumer.

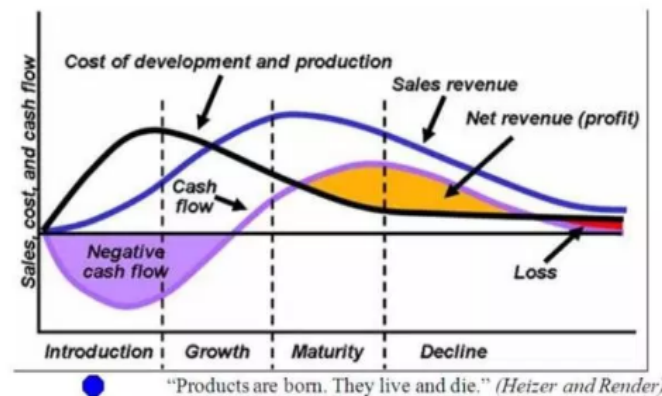
The purpose of this research is to know (1) the impact of life cycle on product mjuta and consumer satisfaction, and (2) level of conformity indicator forming of consumer satisfaction to product quality so it can know how far a product will be accepted by consumer and how product able compete competitively through product life cycle assessment.

LITERATURE REVIEW

Characteristics of Stages in the Product Life Cycle

At each stage there are different opportunities and problems in relation to marketing strategy and profit potential. By recognizing the stage at which a product is located, or to be addressed, the management can formulate the right marketing plan and strategy (Poopak and Agamuthu, 2011). In addition to the above characteristics, Product Life Cycle also has some of the following characteristics:

1. Not every product through all stages. Some products even exist that never pass the introductory stage. Generally products that fail to enter all these stages are products related to technology and fad (fad).
2. Length of a Product Life cycle The products for each product vary widely. Product category has the longest Product Life Cycle, product form tends to follow the standard Product Cycle (S shape) pattern, while the brand has the shortest Product Life Cycle. The fact proves that not all products have a Product Life Cycle, as presented in most textbooks. Meanwhile, life cycle style has a long life cycle, while the fad life cycle is only short.
3. Product Life Cycle can be extended with innovation and repositioning. Many examples of companies that successfully extend Product Life Cycle of its products so that sales do not decrease but instead continue to increase.



Picture 1. Product Life Cycles

Life Cycle Analysis

Life cycle analysis is the analysis of environmental impacts over the life of the product from the extraction of raw materials to the end of life (Yasin, 2013). Stages of the product life cycle consist of:

1. Phase of Introduction

Introducing a new product is the most cost-effective first stage when a company launches. The market for this new product is still small and this means sales are still low, although over time there will be an increase. On the other hand, costs for things such as research and development, product testing to consumers, and marketing required for product launching can be very high. Especially if you are in a heavy competition sector. A common strategy at this stage is to combine pricing and promotional activities. This strategy has four forms, namely:

a. Rapid Skimming Strategy

This strategy is carried out by way of setting a high price to obtain as much gross profit per unit as possible, as well as by conducting a vigorous campaign to convince consumers about the quality of the product even though the price is expensive. This method is usually used to accelerate the pace of market breakthroughs. This strategy will work if most markets do not know the existence of the product, the consumer is willing to pay at any price, and the company faces potential competitors and wants to build a preference on its brand.

b. Slow Skimming Strategy

The strategy is run by setting a high price to get as much gross profit per unit as possible and low promotions to keep marketing costs too high. This strategy will work if the market size is limited, most consumers know the existence of the product, the consumer wants to buy at a high price, and potential competitors have not appeared.

c. Rapid Penetration Strategy

This strategy is done by setting low prices and aggressive promotions. The goal of this strategy is to gain rapid market acceptance and gain substantial market share. This strategy will work if the market is very broad, consumers do not know the existence of the product, the consumer is very sensitive to the price, and there are indications of great potential competition.

d. Slow Penetration Strategy

This strategy is executed by setting a low price to obtain a large acceptance from consumers and low promotions so that marketing costs do not swell. The success of this strategy should usually be supported by a very broad market, consumers know the existence of the product, the consumer is price sensitive, and the potential competition is very low.

2. Phase of Growth

The growth stage is usually characterized by strong growth in sales and profits, and as companies begin to benefit from economies of scale in production, profit margins, and total profits will increase. This allows companies to invest more money in promotional activities to maximize potential at this stage of growth. This stage alone can be divided into two groups, namely rapid growth and slow growth.

a. Rapid Growth

This rapid growth stage is marked by the rapid rise of the company's sales level because the product has been accepted and requested by the market. Not all new products can reach this stage, not even a few new products that fail at an early stage. But if the new product succeeds, in accordance with the needs of consumers, then this situation will attract competitors to enter the industry with counterfeit products. Marketing strategy at this stage is aimed primarily to build a strong market and specialize distribution. The product quality is improved and the product line is expanded to attract new market segments.

b. Slow Growth

At this stage, sales are still rising, but with declining growth. Most of the market has been reached, because the company's products have been used by the majority of consumers. This situation will cause the company to start updating its products in order to maintain its sales. In general, business modification is done by improving the model (style improvement) in order to stabilize the position of its products in the market. Profit will be increasingly difficult to obtain companies and distributors because of price competition will tend to cause a decrease in prices. More and more competitors are coming out of the market due to the diminishing profits / attractiveness of the industry.

3. Phase of Maturity

At this stage, producers are challenged to retain the market share they have built by all means. This is the most time full of competition for most products and businesspeople need to invest wisely in marketing activities. They also need to consider modifying the product or making improvements to the production process. There are two main strategies that can be applied at the stage of maturity:

a. **Defensive strategy**, which aims to maintain market share from competitors and keep product groups from substitution product attacks. This form of strategy is a modified marketing mix to gain additional sales. This defensive strategy focuses more on reducing production costs and eliminating product weaknesses.

b. **Offensive strategy**, which focuses more on change effort to achieve better level. The form of this strategy can be market modification, ie by hooking up non-user groups, intensifying product offerings to non-users, and grabbing competitors' customers. Another form of offensive strategy is product modification, that is, changing the characteristics of a product in such a way that it attracts consumers today to buy, by offering new benefits from a product to consumers now to encourage more purchases and more frequent use (businesses like this often called product relaunching).

4. Phase of Decrease

Called as the stage of decline when eventually the market for products began to shrink. This depreciation can be due to a saturated market (all customers who have already purchased the product), or because consumers are switching to other types of products. Although the process of decline is unavoidable, there is still the possibility for companies to make a profit by switching to cheaper production methods and cheaper markets. The combination of the marketing mix will usually also change with the shift in the life cycle of the product. Some of the underlying reasons for this are that consumers' attitudes and needs will change during the current cycle.

Product policies may be directed to different target markets because different stages are different, this will result in the form of competition will also begin to shift from a monopoly to a market situation that leads to oligopoly. In relation to product sales, the difference in cycles also means there is a difference in the orientation of achieving the company's product sales targets. In general, sales targets are low at the introductory stage, then increase in the maturity stage, and eventually decrease.

The alternative strategies that can be done are:

- a. Increase investment in order to dominate or occupy a good competitive position.
- b. Changing the product or searching for new usage / benefits on the product.
- c. Looking for new markets.
- d. Stay at the current level of corporate investment until industrial uncertainty can be overcome.
- e. Reduce selective company investment by leaving less profitable customers, but increasing investment for small, loyal and lucrative consumer groups.
- f. Harvesting strategy to realize cash refund quickly.
- g. Leave the business and sell the company's assets.

Techniques Performed To Extend the Product Life Cycle

- a. Increase Consumption by persuading consumers to increase the use of their products with the various benefits offered.
- b. Look for other functions of the product than usual ..
- c. Modify the product to look new and fresh both in terms of content, packaging, measure, size, benefits, and so forth.
- d. Looking for new consumer targets. If an existing market is unreliable to increase sales then it can be pursued by targeting new market segments to be persuaded to become customers.

Life Cycle Assessment

Lifecycle assessment (LCA) is a tool to compare product choices and to identify opportunities to mitigate related impacts. LCA provides a complex insight to many process-oriented and impact-oriented effects and risks. The focus of the LCA is usually on contributions to regional and global scale impacts, including resource consumption. All stages in the product life cycle can result in waste generation, and resource consumption. The product lifecycle assessment assists decision making by taking into account the contribution to the impact, as well as the possibilities occurring in many stages of the product life cycle, during the process of raw materials to final disposal. The impact assessment is used to identify potential environmental influences by using life cycle impact analysis results (Sharaai, et al. 2011).

Consumer behavior

Consumer behavior is a process through which a person / organization searches, buys, uses, evaluates, and disposes of products or services after being consumed to meet its needs. Consumer behavior will be shown in several stages: stage before purchase, purchase, and after purchase (Kotler, 2009). In the pre-purchase stage consumers will search for information related to products and services. At the stage of purchase, the consumer will purchase the product, and in the stage after purchase, the consumer takes the consumption (product use), evaluates the product performance, and finally discards the product after use. Or the activities of individuals directly involved in obtaining and using goods and services including the decision-making process on the preparation and determination of such activities.

Consumers can be individuals or organizations that have different roles, such as acting as an initiator, influencer, decider, buyer, or user. (1) The Initiator, is an individual who has the initiative to purchase certain goods; (2) Influencers, are individuals who influence purchasing decisions. Information on the given criteria will be considered either intentionally or not; (3) Decider, who decides whether to buy or not, what to buy, how to buy it; (4) Buyer, is an individual who makes a real purchase transaction; (5) Users, ie individuals who use products or services purchased.

Many factors influence a person to purchase a product. Management needs to learn these factors to make their marketing programs more successful. These factors include economic, psychological, sociological and anthropological factors. The reason someone buys a particular product or reason to buy at a particular seller will be a very important factor for the company in determining effective product design, pricing, distribution channels, and promotion programs, as well as several other aspects of the company's marketing program.

Customer Satisfaction Index (CSI)

The Customer Satisfaction Index (CSI) is used to determine the overall level of customer satisfaction with an approach that considers the importance of the variables being measured. According to Kurniyah, et al (2016), measurement of the Customer Satisfaction Index (CSI) is required because the results of the measurement can be used as a reference for determining future targets. The customer satisfaction index (CSI) can be calculated by the following steps:

- a. Calculating Weighting Factors (WF), ie the function of the median importance level of each attribute in the percentage (%) form of the median significance level score for all attributes tested.
- b. Calculating Weighted Score (WS), the function of the median score of the satisfaction level of each attribute multiplied by Weighting Factors (WF) of each attribute.
- c. Calculating Weight Median Total (WMT), which is the total of the overall Weighted Score (WS) score.
- d. Calculating Customer Satisfaction Index, which is the calculation of the total Median Weight (WMT) divided by the maximum scale, then multiplied by 100%.

RESEARCH METHODS

Based on the scope of the research to be studied, this type of research is a field study to investigate whether or not the basis of evaluative impact of the implementation of the product life cycle on the quality of organic rice products of organic rice entrepreneurs in Ketapang Semarang. The type of data source for the research is primary data in the form of field data obtained from interviews, surveys and direct observation to the data source. Data collection techniques are done by using interviews openly and in depth to the businessmen who feel the achievement of similar products before. The method used to evaluate the environmental impact is Life Cycle Assessment.

ANALYSIS AND DISCUSSION

Innovation of Rice Cultivation Technique

Rice cultivation techniques that can increase rice productivity by changing the management of plants, soil, water and nutrients, has been shown to increase rice productivity by 50%, even in some places reached more than 100%. All potential elements in rice plants are developed by providing conditions appropriate to their growth. The principles of cultivation of the padi include:

1. Young seedlings are less than 12 days after seed (hss) when the seeds are still leaf 2 pieces
2. Seedlings planted a perforated tree with a distance of 30 x 30, 35 x 35 or less
3. Move cropping should be as soon as possible (less than 30 minutes) and should be careful that the roots are not broken and planted shallow
4. Provision of water maximum 2 cm (macak-macak) and a certain period is dried until broken (Irrigation intermittent / disconnected)
5. Weeding from the beginning about 10 days and repeated 2-3 times with a 10-day interval
6. As much as possible using organic fertilizer (compost or green manure)

The cultivation techniques include:

1. Preparation of seeds
Seeds before sowing are tested in brine solution. A solution of brine sufficient to test the seed is a solution which, if inserted eggs, will float. A good seed to be seed is the seed that is immersed in the solution. Then the seeds have been tested soaked in plain water for 24 hours then drained and dipam 2 days, then menyemaikan on soil media and organic fertilizer (1: 1) in the container rectangle size 20 x 20 cm (pipiti). For 7 days. After 7-10 days the seeds are ready for planting
2. Soil processing
Soil processing For SRI rice SRI method is not different from the way of soil processing for rice planting conventional way is done to get a better soil structure for plants, menghidar from weeds. Processing is done two weeks before planting by using hand tractor, until mud structure is formed. The ground surface is flattened to make it easier to control and control the water.
3. Fertilization treatment
4. The fertilizer application at SRI is directed to the improvement of soil health and the addition of nutrients that are reduced after harvesting. The first organic fertilizer requirement after using conventional system is 10 tons per hectare and can be given up to 2 garden seasons. Once visible soil condition improves the organic fertilizer can be reduced to suit the needs. Provision of organic fertilizer done in the second stage of soil fertilizer can be integrated with the soil.
5. Maintenance
SRI system planting system does not require continuous waterlogging, just with the condition of wet soil. Flooding is done only to facilitate maintenance. In practice water management in the organic rice system can be done as follows; at the age of 1-10 HST rice plants flooded with average water heights of 1cm, then at the age of 10 days weeding. After weeding the plants are not inundated. For the treatment that still needs the next weeding, then two days before weeding the plants. At the time of flowering plants, plants are stagnant and after ripe rice plant milk is not flooded until harvest.
To prevent pests and diseases in rice are not used chemicals, but done intermediate and in case of pest / disease diseases used vegetable pesticides and or used physical and mechanical control.

The Differences of Organic Results with Non Organic

The need for organic fertilizers and pesticides for organic rice organic methods can be obtained by finding and making them yourself. Composting as a fertilizer is done by using animal waste, residual plants and household waste using local MOL (Homemade Micro-organism) activator, as well as pesticides sought from plants as pest control. Thus the cost of the spend becomes more efficient and cheaper. The use of organic fertilizer from the first season to the next season has decreased an average of 25% from the previous season. While on conventional methods of inorganic fertilizer from season to season tends to increase, this condition will be more difficult for conventional farmers to be able to improve productivity especially when faced with the scarcity of fertilizer when planting season arrive.

Fertilization with organic material can improve soil conditions both physical, chemical and biological soil, so the processing of soil for SRI method becomes easier and cheaper, while the soil processing using inorganic fertilizer continuous soil conditions the loss of organic matter and soil conditions more severe, resulting in the more difficult the processing and the cost will be more expensive. Yields with organic matter in the first season are not much different from the previous results (conventional methods) and continue to increase in the next season in line with increasing organic and soil health.

The organic rice produced from the planting system in the first season has the same price as the rice from the conventional planting system, the price is based on the assumption that the rice is not yet organic, because there is still chemical fertilizer left over from the previous planting season. And for the next season using SRI method respectively, then until the 3rd season will be obtained organic rice and will have a higher price than rice from conventional system.

From the various rice produced by farmer groups joined in Segu Agro Utama Agricultural Cooperative Utama Qaryah Thayyibah and Agribusiness Society Financial Institution (LKMA), there are 4 kinds of rice that sell well in the market, that is organic black rice, organic red rice, pandanwangi, and mentik.

Obstacles of Organic Rice Development

Development of organic rice as an effort to increase the income of rice farmers, although in the long run also face various complex problems. The problem is not only related to the technical aspects of production, such as what technology can be done, but also the level of household welfare, owned production assets, the level of needs, the growing perceptions in society, marketing, and farmer institutions. Opportunities for open organii rice cultivation are widely available with the availability of inputs from local resources such as local superior rice varieties, and farm and plant waste.

The availability of organic rice seeds will be constrained because although there are many local varieties, they are usually not produced in a mass or farmers are not convinced by the quality assurance and authenticity of the marketed seeds. Farmers prefer to do natural selection from existing seeds or buy from a trusted party in the neighborhood. Other barriers related to cultivation are some means of production of organic rice should be made by the farmers because not all farmers are able and willing to do. In addition, organic rice fields are still integrated with non-organic lands and are in an integrated irrigation network, so that chemical pollution through water is still large. This makes the assurance of authenticity of organic rice produced relatively difficult, thus reducing the bargaining position of farmers.

For socio-economic aspects that hamper the development of organic rice is the adequacy of farmers' business capital, lack of productive assets supporting organic agriculture, and the development of perceptions that do not support organic rice farming. Most of our farmers are low-income people and their capital adequacy is limited. In the early stages of development of organic

farmers will require high production costs because at this early merpakon stage of soil quality improvement. Development of organic rice from the aspect of cultivation should be accompanied by efforts to increase understanding of organic farming, for example through counseling-counseling. In addition, with limited capital in general farmers will do the production process manually so it can not be a production in a missal. As a result, the ability to meet market demand is limited and based solely on personal beliefs.

Institutional organic farmers and supporting institutions are an important aspect in developing the business. This will foster member's motivation in production and improve business management efficiency. But the impression this group of farmers develop themselves by exploiting the proximity and trust between individuals to market their products so that not yet able to exploit the existing potential market.

Table 1. Matrix of Organic Rice Development and Constraint Policy

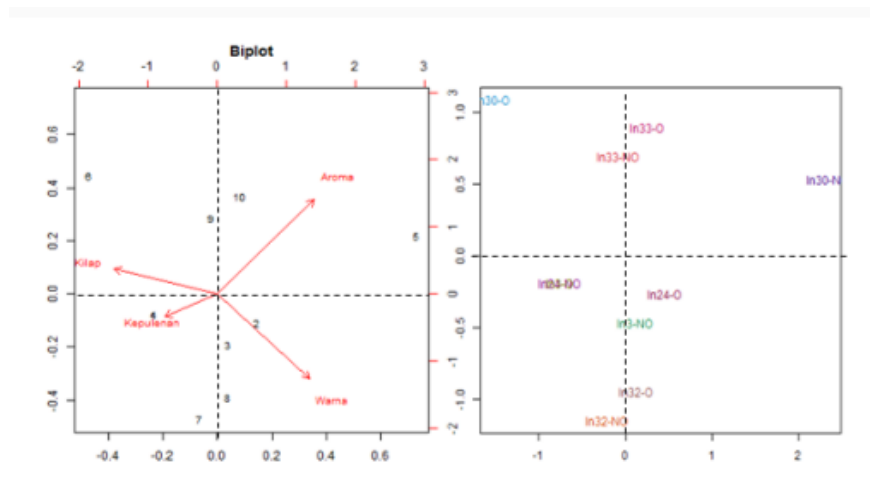
Aspect	Obstacles	Policy
Organic seeds	The availability and quantity of seeds for organic crops is still limited because iganik farming can not use non-organic seed from genetic engineering	Development of organic rice seed production, increased group access to the main seed center and seed certification center, preparation of organic seed production SOP and seed quality standard.
Organic fertilizer	The number of needs and many sources of fertilizer is still limited	Increased ability of farmers and farmer groups to produce their own organic fertilizer
Organic pesticides	Tools and materials are easy to get but the manufacturing process requires special skills	Increased ability of farmers and farmer groups to produce their own organic pesticides
Labor	The age of the farmer is relatively old, the source of labor is limited	Empowerment of farmer groups through arrangement of group working mechanism and training of youth farmer's interest
Capital of farming	Limited ability of farmers capital	Increased access and capital support
Post-harvest and processing results	Farmers still use simple equipment	Provision of facilities for those who can make loans independently
Marketing	Ability to meet limited market demand, based on personal trust	Increased group production capacity and market promotion assistance
Institutional	The farmers' group tried their own lack of guidance and assistance	Improved business management skills, through education, training, counseling.

Life Cycle Impact Assessment

This is done to analyze the proper way of organic planting in producing the best and healthy rice quality (zero pesticide residue). Grain samples used maximum 1 month after harvest each amounted to 21 packs @ 50 grams and placed in 3 different temperatures. So the total requirement for the test is 63 pack. Grain quality, grinding quality, rice quality, cooking quality, nutrient quality, taste quality, shelf life, and pesticide residue analysis were conducted at Food Technology Laboratory. The quality of unhulled grain and grain density of organic cultivation results showed significantly different from the non-organic cultivated grain. Character of physical quality of grain on the variety of mentik seen most influenced by the way of organic and non organic cultivation while the varieties Pandanwangi least influenced by the way of cultivation. There are at least two distinct milling quality characters between organic and non-organic cultivated rice of each variety tested. of Mentik varieties, Pandanwangi, IR 64, and Bramo rice showed significantly different between organic and non-organic cultivated rice. Mentari varieties have milling quality characteristics least affected by organic and non organic cultivation. The character of rice quality most affected by organic and non organic cultivation is white degree. The white degree of non-organic Pandanwangi rice is whiter than the organic rice, while the Mentik, Bramo and and IR 64 organic rice are whiter than the non-organic rice.

The consistency of the gel from organic cultivated rice did not show any different from the consistency of non-organic cultivated rice gel in all tested varieties. The temperature of gelatinization of organic Mentik rice is different from non-organic cultivated rice. The temperature of gelatinization organic Mentik enter the classification of medium temperature gelatinisasi whereas non-organic Mentik enter in the classification of low gelatinisasi temperature. The temperature of gelatinization from other varieties showed no difference between organic and non-organic cultivated rice.

Protein content of Mentik, Pandanwangi and Bramo varieties were significantly different between organic and non-organic cultivation results. Differences cultivation to Fe content only significant effect on rice varieties Bramo while Zn content only significant effect on rice varieties Pandanwangi. The effect of cultivation on fat content showed significant difference in both rice varieties. During rice storage, the acidic aroma of Non-organic Mentik rice is faster to emerge than the organic Mentik rice scent. The new Pandanwangi shows the aroma of the acid on the third day where the intensity of the aroma on Pandanwangi rice is higher than the non-organic Pandanwangi rice. Meanwhile, the color of rice varieties tested began to show color changes on the second day of storage.



Picture 2. Results from Pesticide Residues

The result of pesticide residue analysis on non-organic cultivation result showed that no residue of pesticide was found in rice produced. No detectable contamination of fungicide residues and insecticides from organophosphat, carbamate, triazole, pyrethroid, and abamectin groups in the rice. The influence of organic and non-organic cultivation on rice quality does not have the same pattern of each variety. Some attributes of quality are higher in organic rice but some other attribute of quality is higher in non-organic rice. In addition, no pesticide residues were found in non-organic rice. The presence of degradation of pesticide compounds is suspected to be a strong reason for the detection of pesticide residues. The allegations need to be confirmed with further studies to identify the pesticide-degradable metabolite compounds observed during planting to possible consumption of rice.

Results of Life Cycle Impact Analysis of Product Quality and Consumer Satisfaction

Level of Conformity Indicators Forming Consumer Satisfaction on Quality of Qaryah Thayyibah Rice Product. The attributes used to measure the level of customer satisfaction with the quality of rice produced by Qaryah Thayyibah are performance, features, reliability, conformance to specification, durability, serviceability, aesthetic, and perceived quality.

Table 2. Level of Conformity of Measurement Indicators of Consumer Satisfaction on Rice Product Quality

No	Product Quality Measurement Indicators	Satisfaction Value	Value of Interest	Level of Conformity
I	PERFORMANCE			
1	Weight of product	195	232	84
2	Product integrity	193	235	82
3	Hygiene products	190	238	79
II	FEATURES			
4	Certification guarantee	219	246	89
5	Packaging products	178	222	80
6	Product labelling	177	218	81
III	RELIABILITY			
7	Health and hygienic guarantee	222	246	91
8	Product specifications	195	225	86
IV	CONFORMANCE TO SPECIFICATION			
9	Shape of product pieces	197	232	85
10	Product color change	182	225	81
V	DURABILITY			
11	Product durability	199	237	83
VI	SERVICEABILITY			
12	Consumer complaints responses	182	240	75
13	Ease of obtaining products	183	236	77
VII	AESTHETICA			
14	Color products	199	238	83

15	Attractive packaging	190	214	88
VIII	PERCEIVED QUALITY			
16	Product price	201	230	87
17	Image in the community	191	208	91
Total		3,293	3922	1,422
Average		193,7	230,7	83,6

Source: Primary Data (2017)

Based on the calculation of Conformity Level (Tki) in the above table, the result shows that the level of conformity of consumer satisfaction measurement indicator on the quality of organic rice product is 83.6% with average range of 75% to 91%. An attribute that has a value of 75% is a consumer complaint response. The attribute that has a value of 91% is the image of Qaryah Thayyibah in the eyes of the public. Meanwhile, when viewed from the average level of customer satisfaction and interest on the quality of Qaryah Thayyibah rice products can be seen in table 2 below:

Table 3. Average Level of Satisfaction and Consumer Interests on Rice Product Quality

No	Product Quality Measurement Indicators	Satisfaction Value	Value of Interest
I	PERFORMANCE		
1	Weight of product	1.95	2.32
2	Product integrity	1.93	2.35
3	Hygiene products	1.90	2.38
Total		5.78	7.05
II	FEATURES		
4	Certification guarantee	2.19	2.46
5	Packaging products	1.78	2.22
6	Product labeling	1.77	2.18
Total		5.74	6.86
III	RELIABILITY		
7	Health and hygienis guarantee	2.22	2.46
8	Product specifications	1.95	2.25
Total		4.17	4.71
IV	CONFORMANCE TO SPECIFICATION		
9	Shape of product pieces	1.97	2.32
10	Product color change	1.82	2.25
Total		3.79	4.57
V	DURABILITY		
11	Product durability	1.99	2.37
Total		1.99	2.37
VI	SERVICEABILITY		
12	Consumer complaints responses	1.82	2.40
13	Ease of obtaining products	1.83	2.36
Total		3.65	4.76
VII	AESTHETICA		
14	Color products	1.99	2.38
15	Attractive products	1.90	2.14
Total		3.89	4.52
VIII	PERCEIVED QUALITY		
16	Product price	2.01	2.30
17	Image in the community	1.91	2.08
Total		3.92	4.38
		32.93	39.22
Average		1.94	2.31

Source: Primary Data (2017)

Based on the calculation of the average level of satisfaction and interests of consumers on Qaryah Thayyibah rice product quality in the above table obtained the average consumer satisfaction level of 1.94, while the average consumer interest of 2.31. Analysis of Consumer Satisfaction Index Analysis of Consumer Satisfaction Index is measured by using the value of Customer Satisfaction Index (CSI) obtained by dividing Weighted Average with maximum scale used as shown in table 4 below:

Table 4. Calculation of Customer Satisfaction Index (CSI) QaryahThayyibah Rice Product

No	Attribute	Average Value of Interest	Importance Weighting Factors (%)	Average Satisfaction Value (Xi)	Weighted Score
1	Weight of product	2.32	5.92	1.95	0,115
2	Product integrity	2.35	5.99	1.93	0,116
3	Hygiene products	2.38	6.07	1.90	0,115
4	Certification guarantee	2.46	6.27	2.19	0,137
5	Packaging products	2.22	5.66	1.78	0,101
6	Product labeling	2.18	5.56	1.77	0,098
7	Health and hygienis guarantee	2.46	6.27	2.22	0,067
8	Product specifications	2.25	5.74	1.95	0,139
9	Shape of product pieces	2.32	5.92	1.97	0,117
10	Product color change	2.25	5.74	1.82	0,104
11	Product durability	2.37	6.04	1.99	0,120
12	Consumer complaints responses	2.40	6.12	1.82	0,111
13	Ease of obtaining products	2.36	6.02	1.83	0,110
14	Color products	2.38	6.07	1.99	0,121
15	Attractive products	2.14	5.46	1.90	0,103
16	Product price	2.30	5.86	2.01	0,118
17	Image in the community	2.08	5.30	1.91	0,095
TOTAL		39.22	100.00	32.93	
Weighted Average					1.887
Customer Satisfaction Index (%)					37.74

Source: Primary Data (2017)

From the table above obtained the results of its CSI value is 0.3774 or 37.74% which is in the range scale of 0.35 - 0.50, meaning that consumers of Qaryah Thayyibah rice products are entirely on the criteria less satisfied. This can happen because researchers only take a portion of consumer respondents in the city who consume organic rice from Qaryah Thayyibah. From most of the respondents, consumers are still unsure of product packaging and product durability. For rice packed in vacuum form will be more durable (+/- 6 months) than regular packaged rice. Non-vacuum rice is more moist so it's faster to get out mushrooms and lice. Logically, it is organic rice will be easier to change naturally because the rice without using preservatives. In addition, it can also be caused by rice that goes in the packaging in a dry condition.

This means that during this Qaryah Thayyibah not yet have standardization for packaging and product endurance test. However, Qaryah Thayyibah has implemented organic Agricultural SOP from SPOI (SPPQT) internal standard organic farming standards by not using chemical ingredients, not using chemical pesticides, and its production must consider the balance of environmental ecosystem / not to damage the environment, and get organic certification from certification body . This is also the attention of researchers. In addition, consumers have problems in obtaining Qaryah Thayyibah rice products. This is understandable because so far the sales of organic rice Qaryah Thayyibah only rely on word of mouth, and more demand comes from outside kotaseperti in Tegal, Surabaya, Jakarta, Semarang with sales turnover per month +/- 25 million. Activities that have been done by Qaryah Thayyibah to increase marketing network is to socialize to institutions, through social media, or by sending samples to the company. So far the paguyuban already have the web (in SPPQT) but never updated

Conclusion

Organic rice business produced by Ketapang Village from Qaryah Thayyibah farmer group still can not run well from management, administration and payment. This is due to the lack of control of the board that causes the payment can not always be done well. In addition, the weaknesses that still exist in Qaryah Thayyibah is the absence of price list and price discount in writing, there is no sales order form, time limit returns, news receipt of goods in case of returns, the process of storage of finished goods has not been ordered, can not meet the number of orders from consumers, there has been no re-check of goods before being sent to consumers, and there is no certainty of the terms of delivery of orders to consumers.

1. From result of analysis of life cycle impact to quality of rice produced by Al Barokah can be concluded that quality character of rice most influenced by organic and non organic cultivation is white degree. The white degree of non-organic Pandanwangi rice is whiter than the organic rice, while the Mentik, Bramo and and IR 64 organic rice are whiter than the non-organic rice. While the consistency of gel from rice of organic cultivation does not show different with the consistency of rice gel of non-organic cultivation in all varieties tested. The temperature of gelatinization of organic Mentik rice is different from non-organic cultivated rice. Rice protein content for Mentik, Pandanwangi and Bramo varieties were significantly different between organic and non-organic cultivation results. The effect of cultivation on fat content showed significant difference in both rice varieties. During rice storage, the acidic aroma of Non-organic Mentik rice is faster to emerge than the organic Mentik rice scent. For the result of pesticide residue analysis on non-organic cultivation result showed that no residue of pesticide was found in rice produced.

2. From the results of the analysis of the level of customer satisfaction on the quality of rice produced by Al Barokah also shows that consumers are less satisfied with the products produced by Al Barokah in terms of product cleanliness, complaint response, ease of obtaining products, and accuracy of delivery. The CSI value is 0.3774 or 37.74% in the scale range of 0.35 - 0.50. This means that consumers of Al Barokah rice products as a whole are on the criteria less satisfied. This can happen because researchers only take a portion of consumer respondents in the city who consume organic rice. Of the respondents, consumers still doubt product packaging and product durability. For rice packaged in vacuum form, it will last longer (+/- 6 months) than plain packaged rice. Non-vacuum rice is more moist so it's faster to get out mushrooms and lice.

Implication

The results of this research are used as input to farmer group Qaryah Thayibah and government to pay more attention to technical aspects of production to ensure the authenticity of the organic rice produced and the increased motivation of farmer group members to produce and improve the efficiency of business management, maintain product hygiene, quickly respond to consumer complaints, as well as monitor the time of sending orders.

Recomendation

From the results of analysis, the suggestions that can be given are:

1. Qaryah Thayyibah Farmer Group pay more attention to the quality of the rice produced, and keep the product hygiene, responsive to any complaints that come from the consumers, and send goods more timely.
2. The government needs to improve the ability of farmer groups in business management through education, training, counseling, and assistance so that farmer groups become stronger.
3. The government needs to facilitate the easier access of farmers to certification bodies so that quality assurance problems can be overcome.

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