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The Effect of Consumer Interest Level on the Implementation Level of Sustainable Agriculture in Green Vegetable Cultivation

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ABSTRACT: Green vegetables are one type of food that is very commonly consumed by the community to fulfill nutrients, vitamins, minerals, fiber and iron. The nutrients contained in green vegetables are needed to increase endurance and facilitate the body's metabolic processes, so it is very related to public health. Vegetable products consumed must be ensured in a safe and hygienic condition, in this case requiring a good and correct cultivation process as stated in the recommendations of a sustainable agricultural system. The objectives in this study were to determine the level of consumer interest in green vegetable products, determine the level of application of sustainable agriculture in green vegetable cultivation and analyze the effect of the level of consumer interest on the level of application of sustainable agricultural systems in green vegetable cultivation. The research was conducted in August 2022 in Jati Agung District, South Lampung Regency on green vegetable farmers with 76 respondents. The research method used is descriptive quantitative with Parcial Least Square (PLS) statistical analysis assisted through SmartPLS software version 3.0. The results showed that the level of consumer interest in green vegetable products is in the low category, which means that vegetable products are no longer in great demand by the community, while the level of implementation of a sustainable agricultural system is in the high category, meaning that respondents have been able to implement good cultivation recommendations even though they are not maximized. The results of the analysis show that the level of consumer interest has a significant positive influence on the level of application of sustainable agricultural systems in vegetable cultivation, meaning that the better the level of consumer interest, the higher the application of sustainable green vegetable farming systems.

KEYWORDS: Consumer interest, Green cultivation, Sustainable agriculture.

1. INTRODUCTION

Sustainable agriculture is an approach to food cultivation that takes into account environmental, social and economic sustainability. The goal is to maintain land productivity without sacrificing environmental quality or the socio-economic life of farmers (Ma'ruf, 2017). This agricultural system has gone through a civilization known since thousands of years ago, and has been developing again since the 20th century along with the negative impact of the green revolution movement which is identical to the farming system that is not environmentally friendly and only emphasizes high productivity. The sustainability of human life depends on the condition of food, both its availability in the community and its safety for consumption.

The safety of green vegetable products has become an important issue in the food and agricultural industry. Green vegetables are an important source of nutrition for humans and are widely consumed around the world, but they can be contaminated by bacteria, viruses or harmful chemicals during the production, transportation or storage process, which can threaten human health (Septiyani, Suryani and Yulianto, 2021). Meanwhile, harmful chemicals such as pesticides that are used excessively can also have a negative impact on human health. The safety level of green vegetable products should be a major concern for producers, processors and distributors. To ensure the safety of green vegetable products, these parties must pay attention to various factors such as good production techniques, safe use of fertilizers and pesticides, and selection of appropriate packaging and transportation methods to prevent product damage or contamination as recommended in a sustainable agricultural system. Regular product quality and safety testing to ensure that marketed products meet food safety standards is necessary. Creating green vegetable products that are safe for consumption is expected to increase public interest in continuing to consume vegetables as healthy food (Erdyanti, 2015).

The level of consumer interest in green vegetable products is one of the important factors in product development and marketing of green vegetable products. Components of consumer interest in green vegetable products are viewed through aspects of price, packaging, ease of consumption, product uniformity and cleanliness. Consumer awareness about the health benefits of green vegetable

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consumption can also affect consumer interest in green vegetable products. Consumers who are concerned about their health will prefer green vegetable products that are healthy, fresh, and not contaminated by harmful chemicals or pesticides. The availability of green vegetable products can also affect consumer interest (Purnomo, 2017). If green vegetable products are not easily available in the market or are too expensive, consumers may switch to other green vegetable products or even switch to other products that are more readily available. Therefore, farmers as producers of green vegetable products must pay attention to the factors that influence consumer interest and innovate in product development and marketing of green vegetable products that can increase consumer interest in their products. This is expected to increase the application of a sustainable agricultural system as a guarantee to produce vegetable products that can meet the needs of the community and have safety from chemical hazards. Based on these statements, the objectives in this study are to determine the level of consumer interest in green vegetable products, to determine the level of application of sustainable agriculture in green vegetable cultivation and to analyze the effect of the level of consumer interest on the level of application of sustainable green vegetable agriculture.

2. RESEARCH METODELOGY

This research was conducted in Jati Agung Sub-district, precisely in Jatimulyo and Sumberjaya Villages, South Lampung Regency, Indonesia in August 2022. The location selection in this study was based on the achievement of the two villages which are part of the area in Jati Agung Sub-district which is the main center of green vegetables to fulfill domestic and outside needs. Respondents in this study were green vegetable farmers who were selected using sample random sampling technique. The method used in this research is a survey method with a quantitative descriptive research approach, which uses numerical data on an ordinal scale of 76 respondents. Data collection methods are primary data and secondary data. Primary data is data obtained by direct interviews, while secondary data is data taken from previously recorded and available data. Analysis of objectives one and two using descriptive statistical methods, namely by looking at the most values that will appear (mode) with categories very high (score 5), high (score 4), quite high (score 3), low (score 2) and very low (score 1). The third objective was answered using parametric statistical tests using the PLS test to determine the effect of two variables consisting of independent variables (X) including the level of consumer interest in green vegetables and the dependent variable (Y) including the level of application of sustainable agriculture in green vegetable cultivation.

3. RESULTS AND DISCUSSION

Consumer Interest Level

Consumer interest is related to the amount of interest or interest of the public to make choices through existing alternatives based on needs, pleasure, satisfaction or usefulness. The choice of a product is also motivated by various driving factors such as product quality, price, promotion, distribution, brand, consumer confidence, and the product image itself (Kotler and Keller, 2013). The level of consumer interest in this study concerns the farmer's assessment of the tendency of consumer choice of the criteria for vegetable products that are in demand, these choices are based on the criteria commonly attached to food products. Vegetable products that are part of complementary foods make these products have many criteria for consideration, in connection with the many other complementary foods as substitute products. Criteria for vegetables that are generally considered by consumers relate to price, size, practicality, packaging and product safety from toxic and harmful hazards. The level of consumer interest in green vegetable products is shown in Table 1.

Table 1. The level of consumer interest in green vegetable products

No	Indicators	Score (Mode)
1.	Consumers are willing to pay more for healthy products.	2
2.	Consumers like products that have a uniform shape/size.	2
3.	Consumers like products that are packaged	4
4.	Consumers like products that are clean and ready to be processed.	5
5.	Consumers always consider product safety from toxic and hazardous materials	3
Mode	2	Low

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Keterangan :
1 = Very low
2 = Low
3 = High enough
4 = High
5 = Very high

Based on Table 1, it can be seen that the level of consumer interest in vegetable cultivation products belongs to the low category, which is at score 2. This situation shows that green vegetable products are no longer in great demand by the community. Consumers want good quality vegetables but are not offset by the desire to spend higher costs, meaning that farmers think that consumers currently prioritize affordability over quality. Other findings show that people's interest in green vegetables is currently decreasing due to the rise of fast food products that are not made from vegetables, thus triggering a decrease in the younger generation's interest in green vegetables which can lead to a decrease in the quality of their health. In line with Natsir's research (2019) which states that the community is currently dealing with the problem of low exercise activities which is also followed by a decrease in public interest in consuming vegetables, resulting in disruption of clean and healthy living behavior patterns (PHBS).

Level of application of sustainable agriculture in green vegetable cultivation

The application of sustainable agriculture in green vegetable cultivation is related to the level of adoption of innovations in agricultural cultivation practices that prioritize environmental conservation efforts. Innovation adoption is a process that involves a person's decision to accept and implement something in a sustainable manner. This study measures the level of adoption of sustainable agriculture in vegetable cultivation which is divided into three main agricultural practices including cultivation, harvesting and post-harvest handling. The level of adoption of sustainable agriculture in green vegetable cultivation by farmers in Jati Agung District can be seen in Table 2.

Table 2. The level of application of sustainable agriculture in green vegetable cultivation in Jati Agung Sub-district

No	Componen	Mode Score	Description
1	Cultivation	4	High
	• Pollution free land	900 – 800 m	Safe
	• Land slope	0 -- 10	Very flat
	• Land preparation	4	High
	• Use of chemical fertilizers	4	As per
	• Green fertilizer	5	Very high
	• Use of pesticides	4	As per
	• Pesticide waste management	3	High enough
2	Harvest	5	Very high
3	Post-harvest	2	Low
	Mode	4	Highi

Based on Table 2 above, it can be seen that the level of application of sustainable agriculture in green vegetable cultivation by farmers is high or in score 4. This condition occurs because from each component has a diversity of achievements, farmers have implemented good crop cultivation practices and have even implemented very good harvesting recommendations, but post-harvest management is still relatively low. The implementation of sustainable agriculture is said to be very good if all aspects are recommended to be carried out optimally and sustainably. Sustainable green vegetable cultivation practices have good goals and concepts to produce quality and healthy products, so as to maintain consumer health, provide high selling prices for farmers and maintain sustainability for the environment (Butar, Prihandono and Sayekti. 2022). The use of contamination-free land in green vegetable cultivation is in the safe category, which means that the use of safe land is seen from the distance between the land and sources of contamination such as hazardous waste disposal sites. Most farmers' land has met the safe criteria of 900 - 800 meters

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distance between land and waste disposal sites, while in the aspect of slope cultivation land is included in the very flat category (0-10) percent of sloping land, the slope of the land is also determined by the topography of the region. The advantage of flat land can make it easier for farmers in land processing, even farmers can cultivate without tillage which can directly save costs and labor (Rejekiningrum and kartiwa, 2022). Land preparation is classified as a high category, meaning that the application of land management which includes land loosening and making mounds to prevent erosion has mostly been carried out by farmers.

The timing of fertilizer use is classified as appropriate, meaning that fertilization has been carried out at the right time, namely 14-15 days before harvest and the average fertilization time is carried out at 8-9 am. The timing was chosen with consideration of air temperature conditions and sunlight that is not yet hot so that it can reduce fertilizer evaporation and provide work comfort for farmers. Meanwhile, the level of green fertilizer use is in a very high category or located at a score of 5. This condition characterizes that almost all respondent farmers have implemented conservation efforts by utilizing surrounding resources in the form of green litter as a natural fertilizer for plants. The use of natural fertilizers can reduce production costs, so that farmers are able to increase farm income (Utomo and Febrianto, 2023). The level of application of sustainable green vegetable cultivation based on the use of pesticide doses is classified in the recommended category. These findings indicate that farmers' awareness in the application of pesticide doses is quite high, some farmers already know the dangers of using too high a dose of persicide will cause damage to the ecosystem and reduce the safety of green vegetable products, but not a few farmers still use pesticides outside the recommended dose in the hope that it will eradicate all pest attacks without thinking about the impacts caused (Pertiwi, Rizal and Triyanto, 2021). The timing of pesticide use of most farmers is classified as appropriate, namely 14-13 days before harvest. The determination of the timing of the use of pesticides is based on the average attack time of pests and efforts to prevent pest attacks such as caterpillars, grasshoppers, flies or fleas. However, in the aspect of waste management used pesticides have not been orderly done to store pesticides away from crops and dispose of used pesticides in a safe place. This shows that some farmers are not fully aware of the dangers of pesticide waste for the safety of green vegetable production that is safe for consumption.

The level of application of sustainable harvesting of vegetable crops is classified in a very high category, namely at a score of 5. Farmers have used harvesting tools with clean conditions and the containers used to hold the harvest are not contaminated with hazardous materials. The importance of paying attention to the state of vegetables in a safe condition is a good effort made by farmers in managing vegetable production. Farmers must carefully determine the right day based on the growth phase (Malik, Wahyuni and Widodo, 2018). The tools and containers used for the harvesting process are ensured to be clean to avoid damaged crops, such as the use of gloves, small knives, baskets and used sacks that have been washed clean.

The level of application of sustainable post-harvest of green vegetables is in the low category or occupies a score of 2. Cleaning of crops using clean water has not been regularly carried out by farmers, this happens because water for washing vegetables is needed in large quantities and requires the right technique. Cleaning of green vegetables before marketing is generally only done simply by removing soil stuck on the roots or dipping a little dirty root vegetables so that the remaining soil disappears. Selection or sorting of crops based on product quality is done very well by farmers, this is done to eliminate injured, rotten or other defective products before marketing because it will provide more value (higher prices) for better quality. Farmers have paid attention to packaging very well by tying vegetables using rubber or rope and collecting them in baskets or clean sacks to protect commodities from damage and improve services in marketing (Rizki, 2019).

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The effect of the level of consumer interest on the level of application of sustainable agriculture in green vegetable cultivation

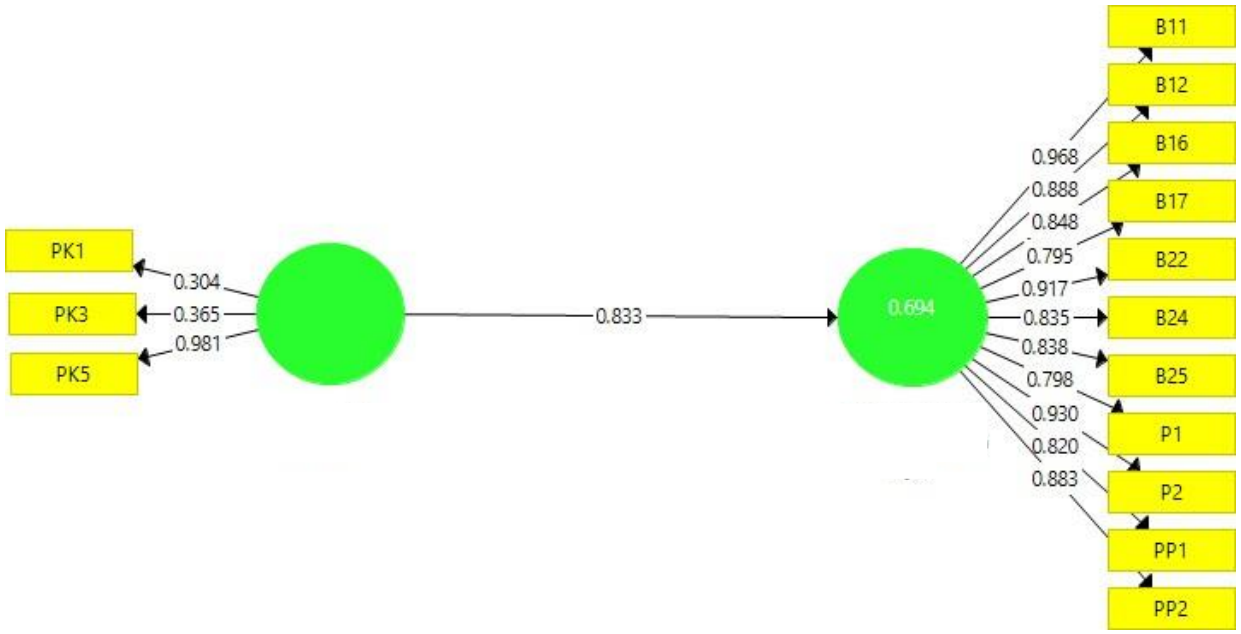

Figure 1. PLS analysis model

Table 3. The results of the test of the effect of the level of consumer interest on the level of application of sustainable agriculture in vegetable cultivation.

Dependent variable (Y)	R-square	Path coefficient	P-value
Level of application of sustainable agriculture in vegetable cultivation	0,694	0,833	0,000

Based on Figure 1 and Table 3, the level of consumer interest has a significant positive effect on the level of application of sustainable agriculture in sayurna cultivation with a P value of (0.00 < 0.05) with a contribution of 69.4 percent (R-square x 100%). The results of this test indicate that the level of interest can affect 69.4 percent while the remaining 30.6 percent is influenced by other factors not examined in this study. Based on the test results, it can be seen that the higher the consumer interest, the greater the level of application of sustainable green vegetable cultivation. The greater consumer interest in buying and consuming green vegetables can be a motivation and trigger for farmers to improve the quality of their cultivation. Farmers will adjust the product criteria that are in demand by the community as consumers. This adjustment effort is made because it is related to the opportunity to increase farmers' income. The more products that can be purchased and are in demand by the community, the greater the income that will be received by farmers. In line with Idaman's research, Yuliati and Retnaningsih (2012) explained that the condition of quality food products will increase consumer interest.

4. CONCLUSION

The level of consumer interest in green vegetable products is in the low category, which means that public interest in green vegetable products has decreased, while the level of implementation of a sustainable agricultural system is in the high category, meaning that respondents have been able to apply cultivation recommendations well even though they have not been maximized, especially in terms of. The results of the analysis show that the level of consumer interest has a significant positive effect on the level of

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