CONSUMER BEHAVIOR AND DEMAND FOR HYDROPONIC VEGETABLES AT VALE FARM HYDROPONIC

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Abstract

A healthy vegetable cultivation system using hydroponic techniques is a solution to the challenges of urban farmers, as an innovation and increase in the efficiency of the agricultural industry to meet global challenges. Vale Farm Hydroponics is an agricultural business on urban land or urban farming through a hydroponic farming system that carries the farm to table business concept, where it is possible for consumers to get a variety of good quality hydroponic vegetables directly from farmers and producers. This study uses a qualitative analysis method. Research data was obtained through interviews with 30 ValeFarm Hydroponic consumers. The survey was conducted using a questionnaire containing questions about consumer behavior and demand for hydroponic vegetables. The results of the research show that consumer behavior is divided into four stages, namely the introduction stage, the evaluation stage is influenced by various factors, such as emotional factors, rational factors, and environmental factors and the post-purchase stage. The factors that affect demand are prices of other goods, consumer income and consumer predictions about the future. The research results showed that the demand for hydroponic vegetables at Vale Farm Hydroponics was 381 kg/month.

Keyword

Hydroponics, Valefarm Hydroponics, consumers, demand

INTRODUCTION

Vegetables are a necessity to complete the body's nutritional intake. The need for vegetables continues to increase due to the healthy lifestyle adopted. The need for vegetables continues to increase during the Covid-19 pandemic. This is in accordance with

research by Mustakim et al.,(2021) which states, more than half of the 100 respondents regularly consume vegetables (56.4%). During the pandemic, respondents experienced an increase of 64%, consuming 2 to 4 servings of vegetables every day.

Healthy *food*is a market trend that will have a high influence on consumer preferencesinselection of vegetables.The need for vegetables which increased during the covid pandemic also occurred in Karanganyar Regency. This is in accordance with BPS data(2022)according to the results of the harvested area for several types of vegetables in Karanganyar Regency, in table 1.

Table 1 Vegetable Harvest Area in Karanganyar Regency

No	Plant Type	Harvested Area per (Ha)		
		2019	2020	2021
1	Spinach	3	0	0
2	Beans	156	171	211
3	Spinach	2	3	4
4	Cauliflower	152	160	169
5	Potato	5	7	12
6	Cabbage	297	303	341
Amount		615	644	737

Source: BPS Karanganyar Regency 2022

The amount of production has increased according to table 1, due to market opportunities resulting from high consumer interest in vegetables. Based on the data in table 1, it shows that one of the commodities that has decreased is spinach. In 2019, the land area for spinach production was 3 Ha, but this decreased in 2020 and 2021. The unavailability of land for production provides an alternative for cultivating spinach using hydroponic techniques. One example of a commodity that can be cultivated hydroponically is spinach.

According to Waluyo et al.,(2021)Healthy vegetable cultivation systems with hydroponic techniques are a solution to the challenges of urban farmers, as an innovation and increase in the efficiency of the agricultural industry to meet global challenges. Hydroponics is one of the cultivation of plants that utilize water as a growth medium, as well as fulfilling the nutritional needs of plants. The hydroponic system can continuously produce higher quality vegetable products compared to conventional farming.

One of the e-retailer businesses for healthy food products in Indonesia is Vale Farm Hydroponics. In the beginning, Vale Farm Hydroponics was located in Jebres, Surakarta, then the production area was moved due to limited land. At the momentlThe production site is located in Gondangrejo, Karanganyar which sells products offline and online with the aim of making it easier for people to buy vegetables for consumption without having to go to the market or supermarket. Vale Farm Hydroponics has provided services on several social media including Whatsapp, Instagram, Facebook and Tiktok.

Vale Farm Hydroponics isbusiness pfarming on urban land or urban farming through a hydroponic farming system that carries the farm to table business concept, where consumers are enabled to get a variety of good quality hydroponic vegetables directly from producer farmers. In a month, Vale Farm Hydroponics is able to harvest approximately 400 kg of vegetablesywhich includes pak choy, lettuce, and kale. The price for pakcoy is IDR 20,000/kg and lettuce is IDR 25,000/kg, and a bunch of kale is sold for IDR 7,000/bunch.

During the COVID-19 pandemic, Vale Farm Hydroponics experienced an increase in product sales and also an increase in profits. Based on the results of research research, during quarter 1-2022 sales at Vale Farm Hydroponics increased from the end of quarter 2021. High consumer interest has an influence on hydroponic production. Based on this background, the aim of this research is to determine consumer behavior and the amount of

demand for hydroponic vegetables at Vale Farm Hydroponics.

RESEARCH METHODS

This research uses qualitative analysis methods. Research data was obtained through interviews with 30 ValeFarm Hydroponic consumers. The survey was conducted using a questionnaire containing questions about consumer behavior and the number of requests for hydroponic vegetables.

RESEARCH AND DISCUSSION

Valefarm Hydroponics has a vision to create the best vegetables so that they can become customers' first choice. Vale Farm Hydroponics is also committed to providing education to local residents and the wider community in the form of hydroponic training. The vegetables grown at Vale Farm Hydroponics are pesticide-free and fresh, the aim is to add value and meet consumer needs. According to Arisani(2022)Consumer behavior towards Valefarm hydroponic products can be divided into three stages, namely:

1. Introduction stage

According to Gharini & Sukadana(2022)Get to know Valefarm hydroponic products through various channels, such as advertising, social media, or recommendations from people. Consumers will consider Valefarm hydroponic products with other hydroponic products and even non-hydroponic products. Considerations include quality, price, and availability. The introduction stage will influence interest in becoming a consumer. Product quality

Product quality is the most important factor influencing consumer behavior towards Valefarm hydroponic products. Consumers will prefer Valefarm hydroponic products if they believe that the product is of high quality. Price is another important factor that influences consumer behavior towards Valefarm hydroponic products. Consumers will prefer Valefarm hydroponic products if they believe that the product has an affordable price. Product availability is also an important factor that influences consumer behavior towards Valefarm hydroponic products. Consumers will prefer Valefarm hydroponic products if they believe that the product is available in an easy to reach place. Promotion and marketing can also influence consumer behavior towards Valefarm hydroponic products.

2. Evaluation stage

According to Mario et al.,(2022)at this stage consumers will evaluate Valefarm hydroponic products based on their own knowledge and experience. Consumers will judge Valefarm hydroponic products. The evaluation stage will affect the decision to purchase hydroponic products. Consumers will decide whether to buy hydroponic Valefarm products or not. This decision is influenced by various factors, such as emotional factors, rational factors, and environmental factors.

3. Post-purchase stage

Consumers will use Valefarm hydroponic products and provide their assessments. This assessment can be in the form of reviews on social media, comments on websites, or complaints to customer service. Respondents' post-purchase considerations through previous consumer assessments. An example of consideration is that products sold are fresh and hygienic compared to products sold in traditional markets. The factors that influence purchasing decisions are product, price, location and service quality. This is in accordance with research (Desrian et al., 2022).

The research results show that consumer behavior has a positive effect on the amount of demand for hydroponic vegetables at Vale Farm Hydroponics. According to Hartono, (2016) Demand characteristics are the relationship between price and quantity of goods demanded. If demand is based on needs alone is said to be absolute demand, the factors that affect demand are: prices of other goods, consumer income and consumer estimates of conditions in the future.

Based on research results, the demand for hydroponic vegetables at Vale Farm Hydroponics varies. Commodities that are in demand by consumers are lettuce, pakcoy and celery. Table 4.10 is the production of hydroponic valefarms that are in demand by consumers.

Table 2 Demand for Valefarm Hydroponics for the Period June 2023

Information	Lettuce	Pakcoy	Celery
Demand for hydroponic vegetables for June 2023 (kg)	290	89	2

Source: Primary Data

Based on research data, consumer demand for lettuce, bok choy and celery is different. The highest demand is for lettuce and the lowest demand is for celery. The total production volume of hydroponic vegetables at Vale Farm Hydroponics for the June 2023 period was 381 Kg, with an average daily demand of 12.7 Kg. Figure 1 presents data on demand for hydroponic vegetables at Vale Farm Hydroponics.

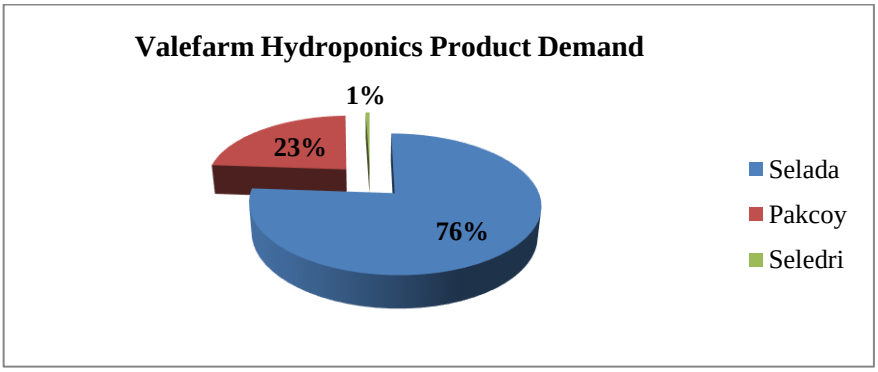

Figure 1 Demand for Valefarm Hydroponic Products
Source: Primary Data

Figure 1 shows the difference in demand for Valefarm's hydroponic products based on the type of commodity cultivated. 76% of the total demand is lettuce, 23% is bok choy and 1% is celery. Factors that influence demand are described as follows:

1. Price of Other Goods

According to Saputri et al.,(2021)The price of other goods that is taken into consideration is vegetables that are cultivated non-hydroponically. The price of hydroponic vegetables is different from non-hydroponic vegetables. Based on data from Putri et al.,(2023). Karanganyar Regency is a center for non-hydroponic vegetables, so this influences the demand for vegetables at Vale Farm Hydroponics. Another factor is that government programs related to the use of yards as places for vegetable cultivation are starting to be developed. The development of the yard is a manifestation of the implementation of the Sustainable Food Yard (P2L) program in order to fulfill the family's nutritional needs. One of the locations for implementing the P2L program is in Gondangrejo District. The location factor as a vegetable producing center and the implementation of the P2L program means that vegetable prices are relatively cheap and

can even be obtained for free. Obtaining non-hydroponic vegetables will influence demand for hydroponic vegetables.

2. Consumer Income

Income can influence the demand for hydroponic vegetables at Vale Farm. Factors influencing consumption patterns, lifestyle and purchasing behavior. Table 2 shows the characteristics of respondents based on total income.

Table 2 Characteristics of Respondents Based on Income

No	Total Income (Rupiah)	Number of people)	Percentage
1	> 500,000	2	7%
2	1,000,000 - 2,500,000	18	60%
3	2,500,000 - 5,000,000	10	33%
	Amount	30	100%

Source: Primary data processed (2023)

In accordance with table 2, the respondent's consumer income varies with a range of less than Rp. 500,000.00 to Rp. 5,000,000.00. Income is one of the factors that can influence consumer decisions in buying hydroponic vegetables. Respondents with higher incomes tend to choose to buy hydroponic vegetables compared to respondents with lower incomes.

3. Consumer estimates about the future

Education level is one of the factors that can influence demand for Valefarm hydroponic products. Respondents with higher levels of education tend to understand more about the benefits of hydroponic products, so they are more likely to choose to buy these products. Table 3 is the education level of the respondents.

Table 3 Characteristics of Respondents Based on Education Level

No	Education	Number of people)	Percentage
1	JUNIOR HIGH SCHOOL	1	3%
2	SENIOR HIGH SCHOOL	13	43%
3	DIPLOMA	2	7%
4	S1	14	47%
	Amount	30	100%

Source: Primary data processed (2023)

Based on table 3, the undergraduate education level is 47% equivalent to 14 people and diploma is 7% or two people. Respondents with high school education were 43% equivalent to 13 people and 3% or one person with junior high school education. The higher the level of education, the greater the influence on decision making related to consumer preferences or tastes.

The level of education influences consumers' ability to predict future conditions. In accordance with the research of Susanto et al., (2022) which states that the superiority of hydroponic vegetable production compared to conventional vegetables is that the hydroponic vegetable production process no longer uses pesticides. The results of hydroponic vegetables are also very clean because they no longer use soil as a growing medium. Buyers can get marketing experience by selecting and picking vegetables directly from the farmer's hydroponic garden. The resulting hydroponic products have safety in the health sector, thus minimizing the risks that occur due to frequent consumption of materials mixed with agricultural products, such as pesticides.

CONCLUSION

Based on research on consumer behavior and the number of requests for hydroponic vegetables at ValeFarm Hydroponics, according to the results obtained, the following conclusions can be drawn:

1. Consumer behavior is divided into four stages as follows:
   a. Introductory stage.
   b. The evaluation stage is influenced by various factors, such as emotional factors, rational factors, and environmental factors.
   c. Post-purchase stage
2. Factors that influence demand are described as follows:
   a. Price of other goods
   b. Consumer Income
   c. Consumer estimates about the future

REFERENCES

Arisani. (2022). *Rancangan Usaha Agribisnis Hidroponik*. Pekalongan: Penerbit NEM.

BPS. (2022). *Statistik Pertanian Holtikultura Kabupaten Karanganyar 2019- 2021*.

Desrian, Aulia, Budiraharjo, Kustopo, & Nurfadilah, Suryani. (2022). *Analisis Keputusan Pembelian Konsumen Terhadap Produk Selada pada Supermarket Gelael di Semarang. Agroland: Jurnal Ilmu-Ilmu Pertanian*, *29*(1), 74–84. https://doi.org/10.22487/agrolandnasional.v29i1.1019

Gharini, Putu Priyanti, & Sukadana, I. Wayan. (2022). *Pemanfaatan Teknologi Hidroponik untuk Meningkatkan Ketahanan Pangan Masyarakat Dharma Santi di Masa Pandemi. Jurnal Kreativitas Pengabdian Kepada Masyarakat (Pkm)*, *5*(4), 1050–1056. https://doi.org/10.33024/jkpm.v5i4.4813

Hartono, Budi. (2016). *Prinsip Analisis Ekonomi*. Malang: Universitas Brawijaya Pers.

Mustakim, Mustakim, Efendi, Rusman, & Sofiany, Intan Rosenanda. (2021). *Pola Konsumsi Pangan Penduduk Usia Produktif Pada Masa Pandemi Covid-19. Ikesma*, *17*(November), 1. https://doi.org/10.19184/ikesma.v0i0.27203

Nina Nursetia Ningrum, Angelia Lionardi, Irfan Dwi Rahadianto, Mario, Mohamad Tohir, Riksa Belasunda, Rd. Rohmat Saedudin, Ahmad Almaarif, dan Adityas. (2022). *Pelatihan Dan Pendampingan Pembuatan Konten Dan Foto Produk Untuk Meningkatkan Penjualan Hasil Hidroponik.* (December).

Putri Ananda, Yosafat Winarto, Bambang Triratma. (2023). *Penerapan Konsep Eduwisata Pada Agro Techno Park*. *6*(2), 346–357.

Saputri, Elisa Medi, Wibowo, Agung, & Rusdiyana, Eksa. (2021). *Dampak Implementasi Program Pekarangan Pangan Lestari (P2L) Di Kecamatan Gondangrejo Kabupaten Karanganyar. Agrica Ekstensia*, *15*(2). https://doi.org/10.55127/ae.v15i2.99

Waluyo, Mohammad Rachman, Nurfajriah, Mariati, Fajar Rahayu I., & Rohman, Qisthi Al Hazmi Hidayatur. (2021). *Pemanfaatan Hidroponik Sebagai Sarana Pemanfaatan Lahan Terbatas Bagi Karang Taruna Desa Limo. Ikraith-Abdimas*, *4*(1), 61–64.