

CONSUMERS' AWARENESS AND PREFERENCE FOR ORGANIC VEGETABLES AND INORGANIC VEGETABLES IN UNIVERSITY OF LAGOS

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Abstract

Organic agriculture has gripped the developing world due to the harmful effects of agrochemicals and inorganic fertiliser-based foods, particularly in Nigeria's urban areas. This study examined Consumers' preference for organic vegetables, emphasising awareness, perception, and willingness to pay for organic food using the University of Lagos as a case study. One hundred and seventy-seven respondents were randomly selected. A questionnaire was used to obtain information on relevant variables on both organic and inorganic food and analysed with descriptive statistics. The result showed that respondents were highly aware of organic vegetables and mainly were informed through the internet (30.3%), television (20.2%) and

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family and friends (18.3%). Consumers preferred organic vegetables to inorganic ones as it was perceived to be healthier (78.8%), of better quality (85.6%), tastier (61%.2), availability (37.5%) but also expensive (40.8%). The consumers' familiarity with organic vegetables primarily influences the willingness to pay for organic vegetables irrespective of prices. Facilities to ensure standard, expansion, proper certification and labelling of organic products were recommended to encourage its market's continuous growth.

Keywords: Awareness; Perception; Consumers; Organic Vegetable, Inorganic vegetable.

INTRODUCTION

Organic foods are foods produced in a well demined organic farm with different standards worldwide. In general, organic farming features cultural, biological, and mechanical practices that foster the cycling of resources and promote ecological balance, and conserve biodiversity (International Federation of Organic Agriculture and Management 2004). Organic production systems are based on specific and precise production standards for achieving optimal agro-ecosystems that are socially, ecologically and economically sustainable. It avoids synthetic pesticides, herbicides, chemical fertilisers, growth hormones, antibiotics or gene manipulation (Bavec and Bavec 2006; Yadav *et al.*, 2013; Jules and Zareen, 2014; Fess and Benedito, 2018). Instead, organic farmers use a range of techniques that help sustain ecosystems and reduce pollution. It reduces the external inputs from chemo-synthetic fertilisers, pesticides, and pharmaceuticals, therefore allowing the natural laws to increase agricultural yields and disease resistance (Bavec and Bavec 2006; Yadav *et al.*, 2013; Jules and Zareen, 2014; Fess and Benedito, 2018).

Vegetables are common crops in Nigeria, grown and consumed by different groups of the population. Therefore, everyone must have access to safe vegetables (Lumpkin 2005; Ibeawuchi *et al.*, 2015; Matemilola and Elegbede, I. (2017). A growing market for organic vegetables, among

other farm products worldwide, is shifting production practices to upturn the inorganic challenge. In Nigeria, however, organic agriculture had existed by default because of the unavailability and sparse use of farmers' chemical inputs. Others adopt animal droppings as manure (Dipeolu *et al.*, 2006; Scialabba 2007).

There is not much information on organic products' responses on the consumer side, which can argue that organic foods are a new product. The wave of certified organic agriculture has only recently hit the shores of Nigeria. Dipeolu *et al.* (2006) found that some consumers were aware that some farmers used animal droppings as manure but did not determine whether the droppings were used solely or in conjunction with other inputs. Since 2016, several scientists and farmers have been cultivating organic vegetables and other crops in various universities, research institutes, and farms, including the University of Agriculture, Abeokuta. It is expected that these activities will have impacts on the immediate communities and beyond.

Also, studies have shown that the organic crop is more expensive than its conventional counterpart. The production, distribution and marketing of organic food are more costly than conventional food because of the costs of segregation of organic products (Brown and Sperow, 2005; Islam, 2013). Prices for organic food include costs of growing, harvesting, transportation and storage. The intensive management and labour used in organic production are frequently (though not always) more expensive than the chemicals routinely used on conventional farms. According to Lia (2010), city and sub-district markets are more lucrative and profitable for organic vegetable traders because consumers in those locations are affluent, quality-conscious, and willing to pay higher prices. It is a known fact that consumers want foods that are readily available, affordable, convenient to acquire and prepare, socio-culturally appropriate, safe and healthy (Dipeolu *et al.*, 2009; Weaver *et al.*, 2014; FAO, 2016). Despite the increased awareness of the importance of organic vegetables to healthy living, this vegetable's low intake has been a general characteristic among Nigerians (Ohen *et al.*, 2014 Yesufu *et al.*, 2018).

Though studies have shown that many consumers prefer organic foods to conventional foods, price is often a significant factor influencing their behaviour because organic vegetables are significantly priced sensitive given their daily consumption (Qingbin *et al.*, 2003; Van and Pivonka, 2000). Despite the importance of organic vegetables to human health and the environment, the short fall in consumption has reduced food availability and thereby affects the expansion of the organic vegetable market (Mie *et al.*, 2017; Yesufu *et al.*, 2018). Similarly, many Nigerian farmers are still hesitant to adopt organic vegetables on a large scale due to inadequate information on the consumers' willingness to pay (Dipeolu *et al.*, 2009; Yesufu *et al.*, 2018).

Organic vegetable consumption is increasing because of concerns over environmental and health issues associated with food production. There is an urgent need to examine organic food demand, especially in developing countries such as Nigeria (FAO, 2017; Global Sustainable Development Report, 2019). As consumer knowledge and awareness are an essential drive for growth in the organic food market, awareness about organic products is growing day-by-day while the knowledge and attitude to prefer the organic products are at the other end influencing the consumption of organic products (Muhammad *et al.*, 2016; Oroian *et al.*, 2017).

On the above notes, this study set out to examine consumer awareness and preference of organic to inorganic vegetables in the University of Lagos and consumers' willingness to pay a premium for the commodities.

STUDY AREA

The University of Lagos (UNILAG) is located within Lagos Mainland LGA of Lagos State. It lies between latitude 3°24'00" N & 3°24'15" N and longitude 6°30'00" E & 6°31'30" E (Fig. 1). It is bounded in the north by Bariga, south by Onike and Iwaya, the east by Lagos Lagoon and in the west by Yaba. The University of Lagos is an institution of higher learning founded in 1962. It presently has three campuses in Akoka, Yaba and Idi-Araba. The main campus of interest in this research is located at Akoka, the

Northeastern part of Yaba in Lagos Mainland LGA and on an area of 802 acres of land.

The University of Lagos and its environs experiences two rainy seasons, with the heaviest of rains falling from April to July and a weaker rainy season in October and November. There is a brief relative dry spell in August and September and a longer dry season from December to March. Monthly rainfall between May and July averages over 400mm, while in August and September it is down to 200mm and in December as low as 25mm. The primary dry season is accompanied by harmattan winds from the Sahara Desert, which can be pretty intense between December and early February. The highest maximum temperature ever recorded was 38°C, and the minimum was 14°C. The University of Lagos falls within vegetation dominated by mixed swamps of fresh wetland water and mangroves forest (Ayeni, 2014). The soil is characterised by coarse unsorted sand clay lenses and occasional pebble beds of the alluvial deposit (Alabi *et al.*, 2010).

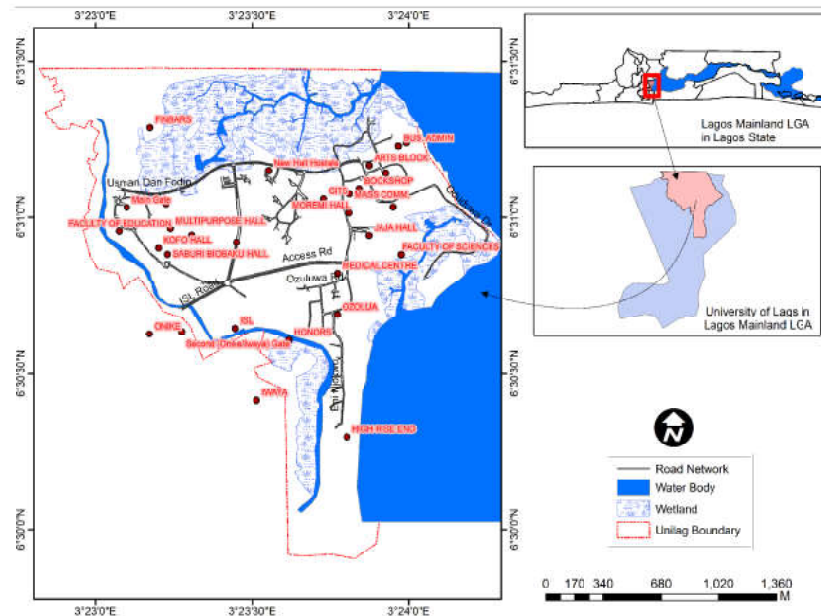


Fig. 1: The University of Lagos

METHODOLOGY

Since the present study focused on consumers' awareness and preference for organic vegetables and inorganic vegetables, the study population were the consumers of organic products. The study was based on a survey from various parts of the University of Lagos community. Consumers were mainly targeted using random sampling.

Primary data and secondary data were collected to determine the characteristics of the Unilag organic agriculture market. The primary data involved gathering data from consumers of organic products. Self-designed questionnaires (manual) were used to collect the information. Observations, interviews, and comments were further integrated into the method adopted in the study. Primary as well as secondary data were collected for the analysis. Respondents/consumers of organic products were contacted directly through observation, interviews, and comments in certain places in Unilag. The places were chosen to reach more consumers of organic products. Questionnaires were delivered and administered in these areas.

Information was also carefully gleaned from examination of available published data of importance to the research project. These include the library, articles, textbooks, journals, periodic reports, seminars and workshops, past newspapers, lecture notes, government statistical digests and information from the internet. These documents provided the necessary data and critical direction for the analysis.

The questionnaire was prepared in English language and divided into six sections. The first section was designed to collect some demographical information about respondents for statistical analysis. In this part, respondents were asked to answer questions relating to gender, age, highest educational level, employment status, number of people living in the household, children's presence, number of earning members, and income.

Questions were also asked on awareness of organic vegetables, respondents' perception, preference/behaviour, organic vegetables consumed and product choices for today and future consumption, and willingness to

pay for organic vegetables and what influences their choices of patronising organic vegetables.

The responses obtained through the survey were collated and coded analysis using descriptive statistics.

RESULTS

Consumers' Demographic status

Table 1 shows that out of 177 interviewed, 108 (61%) were males, and 69 (39%) were females. This implies that the majority of the respondents were male.

Table 1: Gender

	Freq.	Percent
Male	108	61.0
Female	69	39.0
Total	177	100.0

Fig. 2. shows the respondents mainly were youths, with 77 (43.5%) of the respondents were between the ages of 20-24years, 38 (21.5%) of the respondents were between the ages of 16-19 years, 28 (15.8%) of the respondents were between the ages of 35 -44 years, 19 (10.7%) of the respondents were between the ages of 25-34years, and only 15 (8.5%) of the respondents were between the ages of 45 - 59 years.

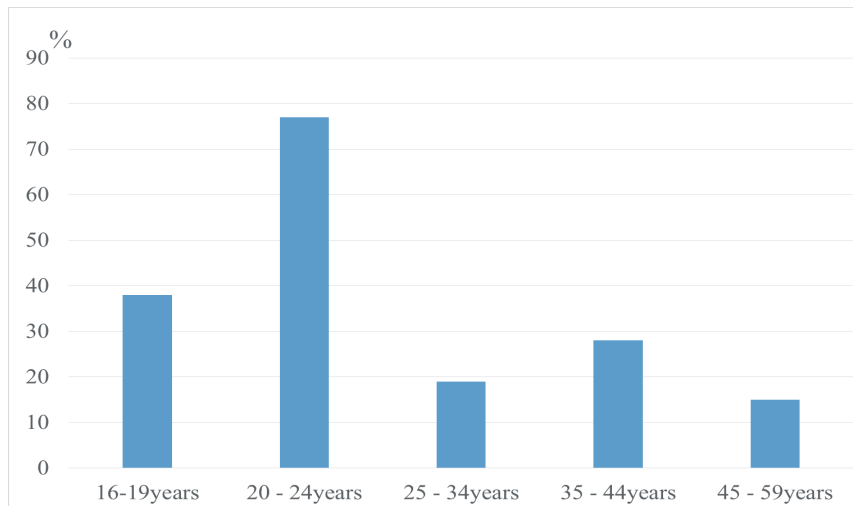


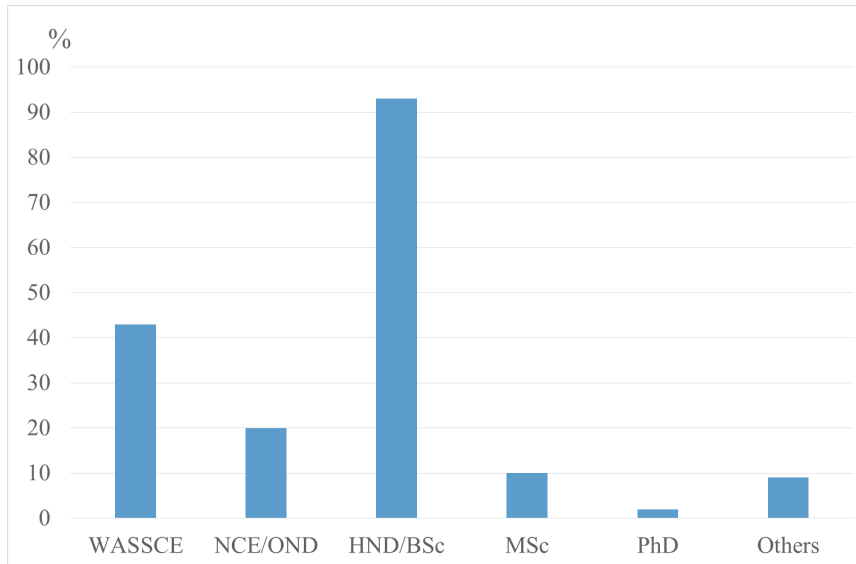
Fig. 2: Age of respondents

Table 2 shows that the respondents were primarily single, making up 73.4%, 24.3% were married, while only 2.3% were widowed.

Table 2: Marital Status

	Freq.	Percent
Single	130	73.4
Married	43	24.3
Widowed	4	2.3
Total	177	100.0

Fig. 3 shows that almost ninety-five per cent of the respondents had formal education. For example, while 52.5% of the respondents had HND/BSc, 24.3% had secondary education, and 11.3% had NCE/OND, 5.6% had MSc, 1.1% had PhD, and only 5.1% had no formal education.



3: Educational Status

Figure. 4 shows that the respondents were people of different professions but more students (59.9%), followed by businessmen/women (19.8%) and civil servants (11.3%).

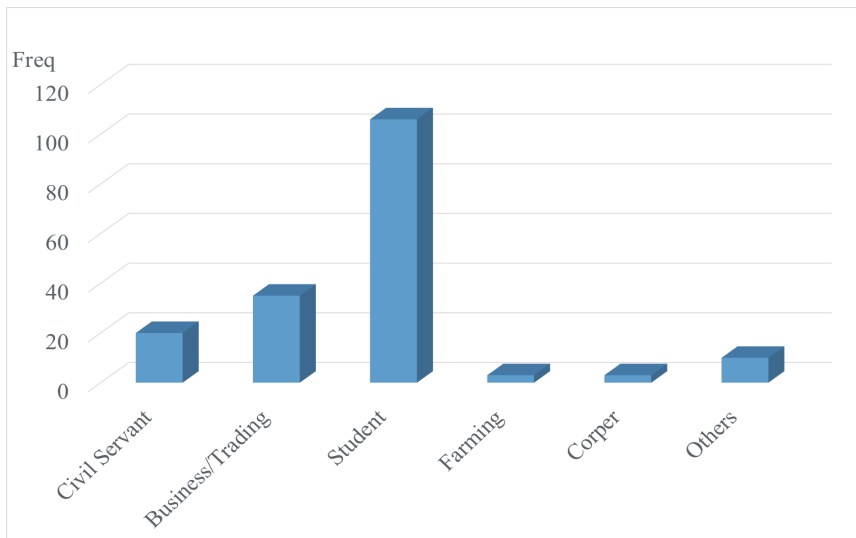


Fig. 4: Occupation

Fig. 5 revealed the monthly household income of the respondents used for this study. Out of the 177 respondents, respondents earning between N1 - N50,000 represents 35%, respondents earning between N100,001 - N150,000 represents 22%, respondents that earns between N50,001 - N100,000 represents 18%, respondents without income represents 14.9%, while respondents earning above N150,000 represents 10.3%. This indicates that low-income earners are the majority and may negatively influence their consumption of organic vegetables.

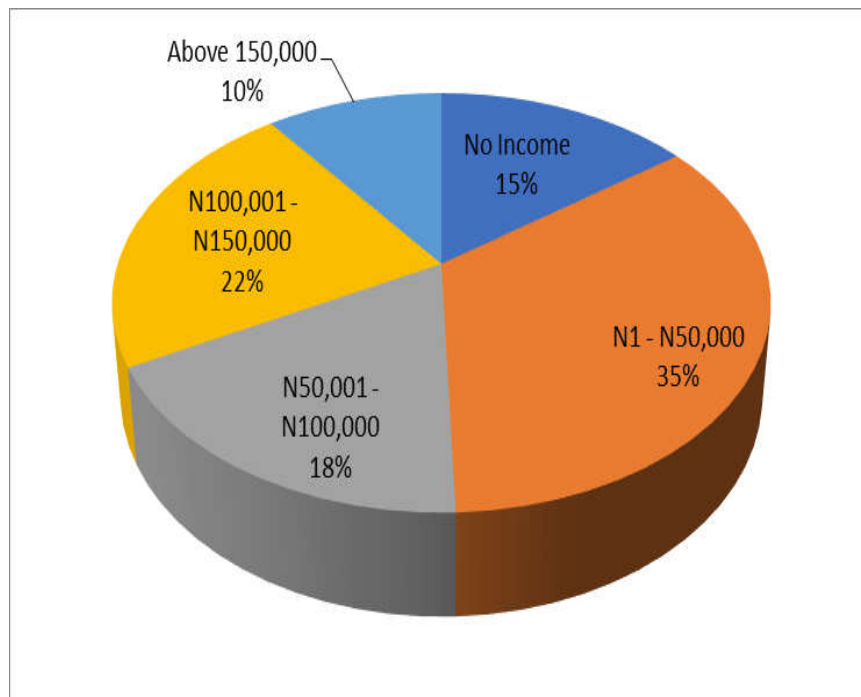


Fig. 6 revealed that out of the 177 respondents, 117, representing 67.6% of the sampled population, had a household size of between 1 and 5. About 45, which represent 26.0% of the respondents, had a household size of between 6 and 10, while 11 respondents representing 6.4% had a household size of above 10. This implies that the majority of the respondents have a household size of between 1 and 5.

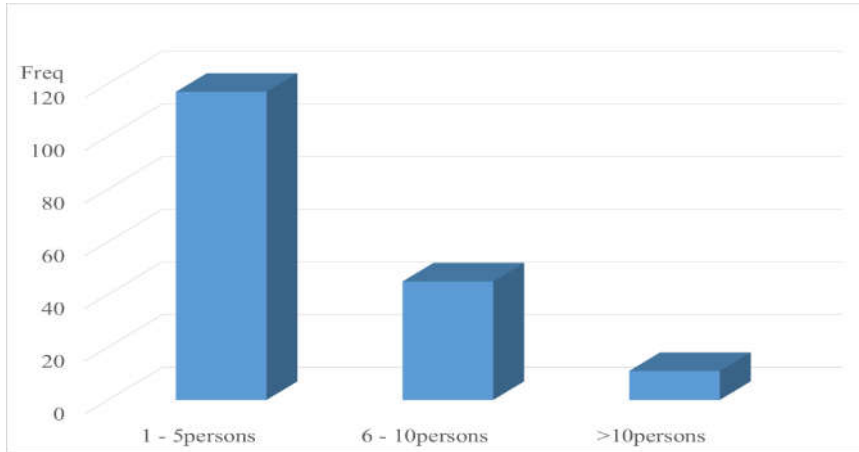


Fig. 6: Household Size

Fig. 7 on monthly income spent on food by respondents revealed that out of the 177 respondents, 42 which represent 24.3% of the respondents spent less than N10,000 of their monthly income on food, 106 respondents (61.3%) of the respondents spent between N10,001 – N50,000 of their monthly income on food, 18 which represent 10.4% of the respondents spent between N50,001 - N100,000 of their monthly income on food and 7 which represent 4.0% spent between above N100,000 of their monthly income on food. This implies that the majority of the respondents spend a maximum of 50,000 on food per month.

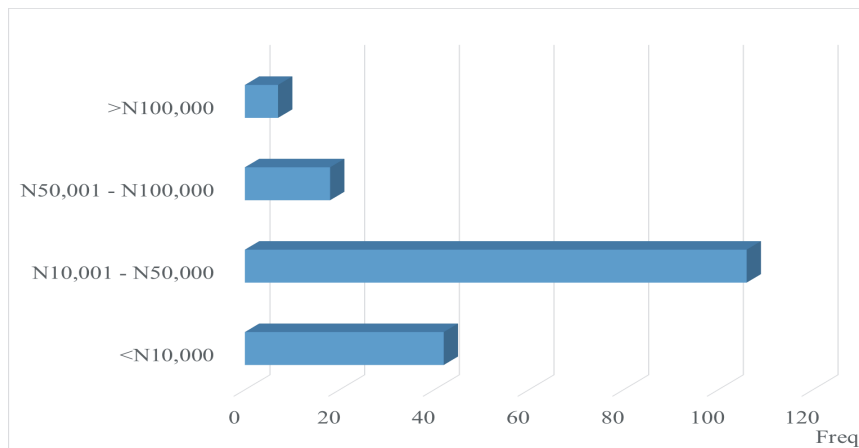


Fig. 7: Monthly Income Spent on Food

Public perception of organic vegetables over inorganic vegetables

Table 3 revealed that out of 177 respondents, 108, which accounts for 61.0% of the respondents, are aware of organic vegetables. In contrast, 69, which represent 39.0% of the respondents, are unaware of organic vegetables. This implies that the majority of the respondents are aware of organic vegetables.

Table 3: Awareness of Organic Vegetables

	Freq.	Percent
Yes	108	61.0
No	69	39.0
Total	177	100.0

Fig. 8 revealed that 33 of the respondents (30.3%) were informed through the internet, 22 which account for 20.2% of the respondents were informed through television, 20 which represent 18.3% were informed through family and friends, 14 which represent 12.8% were informed through the market, 10 which represent 9.2% were informed through radio, 3 which represent 2.8% were informed through Pamphlet/Newspaper and 7 which represent 6.4% were others. This implies that the majority of the respondents' source of information was the internet.

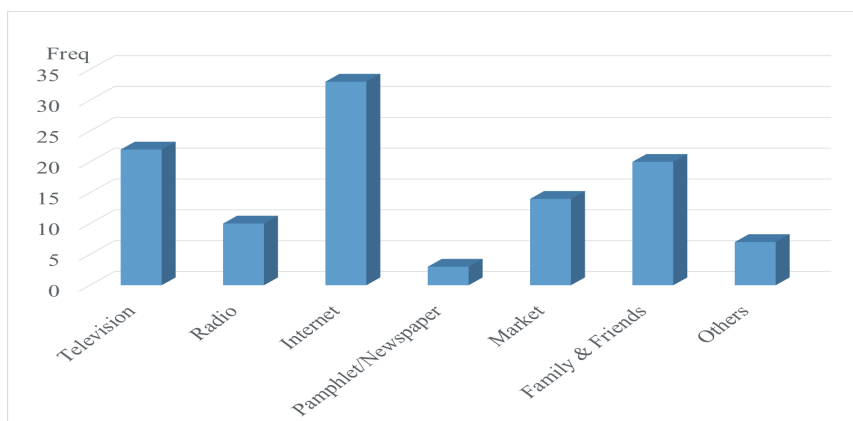


Fig. 8: Source of Information

Table 4 shows the response to organic vegetable consumption. Out of the surveyed respondents, 99 represent 91.7% of the respondents have consumed organic vegetable(s), 9 which represent 8.3% have not consumed organic vegetables before. This implies that the majority of the respondents have consumed organic vegetable(s).

Table 4: Consumed organic vegetable before

	Freq.	Percent
Yes	99	55.9
No	9	5.1
No response	69	39.0
Total	108	61.0

Fig. 9 revealed that 46.3% of the respondents consumed organic tomato, 42.4% consumed organic okro, and 39.5% consumed organic pepper. This implies that the majority of the respondents have consumed organic vegetable(s).

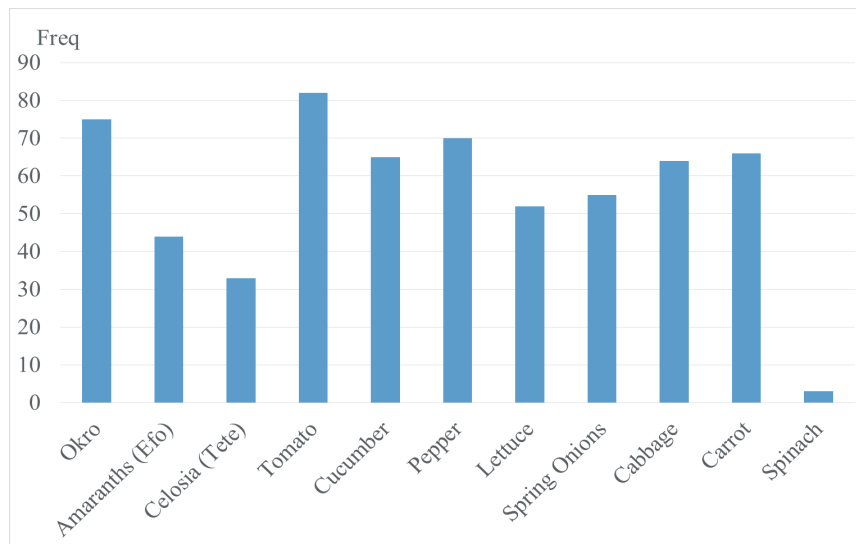


Fig. 9: Organic Vegetable consumed

As per where consumers purchased organic vegetables, fig. 10 revealed that 81 respondents (78.6%) purchased organic vegetable from the market, 11 which represent 10.7% of the respondents purchased organic vegetable from the farm, 9 which represent 8.7% of the population purchased organic vegetable from a store. In contrast, online store and others have 1, which represents 1.0% of the respondents purchased organic vegetable. This implies that the majority of the respondents purchased organic vegetables from the market.

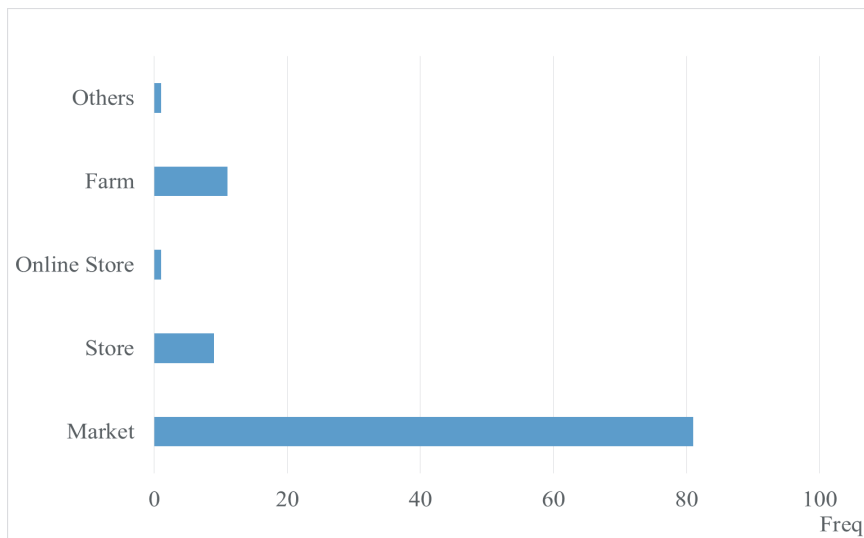


Fig. 10: Where Organic Vegetables were purchased

Table 5 on availability of organic vegetables revealed that 39 of the respondents (37.5% of the sampled population) claimed organic vegetable were readily available, 35 which represent 33.7% of the respondents argued that organic vegetable was not readily available, 16 which represent 15.4% adjudged that availability of organic vegetable was not different from inorganic vegetable. In comparison, 14, which represents 13.5%, had no idea of organic vegetable availability. This implies that the majority of the respondents believed that organic vegetables were readily available than inorganic vegetables.

Table 5: Public perception of organic vegetables over inorganic vegetables

	Yes		No		Indifferent		No Idea		Others		Total	
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent %
Availability	39	37.5%	35	33.7%	16	15.4%	14	13.5%	0	0.0%	104	100.0%
Health	82	78.8%	8	7.7%	9	8.7%	5	4.8%	0	0.0%	104	100.0%
Better Quality	89	85.6%	4	3.8%	9	8.7%	2	1.9%	0	0.0%	104	100.0%
Taste	63	61.2%	17	16.5%	17	16.5%	5	4.9%	1	1.0%	103	100.0%
Price	42	40.8%	36	35.0%	12	11.7%	13	12.6%	0	0.0%	103	100.0%

On healthy, about 78.8% of the respondents claimed organic vegetables are healthier than inorganic vegetables, 7.7% had a contrary opinion, 8.7% of the population were indifferent. In comparison, 5 4.8% had no idea of organic vegetables' health impact (Table 5). This implies that the majority of the respondents believes that organic vegetables are healthier than inorganic vegetables. About 85.6% of the respondents claimed organic vegetables are better in terms of quality than inorganic vegetables, 3.8% argued that inorganic vegetables are better than organic, 8.7% claimed both have the same quality but a matter of one's choice. In comparison, 1.9% argued that they had no idea about quality comparison (Table 5). This implies that the majority of the respondents believes that organic vegetables have better quality than inorganic vegetables. In the taste assessment, 61.2% of the respondents argued that organic vegetables have a better taste when compared to inorganic vegetables, 16.5% of the sampled population consented to inorganic vegetables as one with better taste 16.5% are indifferent in their taste comparison.

In comparison, 52.8% have no idea about the taste comparison (Table 5). This implies that the majority of the respondents believed that organic vegetables were tastier than inorganic vegetables. About 40.8% of the population claimed that organic vegetables were more expensive than inorganic vegetables, 35.0% of the population agreed that organic vegetables were not expensive as inorganic vegetables, 11.7% of the population argued that the price of both was the same. In comparison, 12.6% of the population had no idea about were are more expensive than inorganic vegetables.

CONSUMERS' PREFERENCE FOR ORGANIC VEGETABLES OVER INORGANIC VEGETABLES

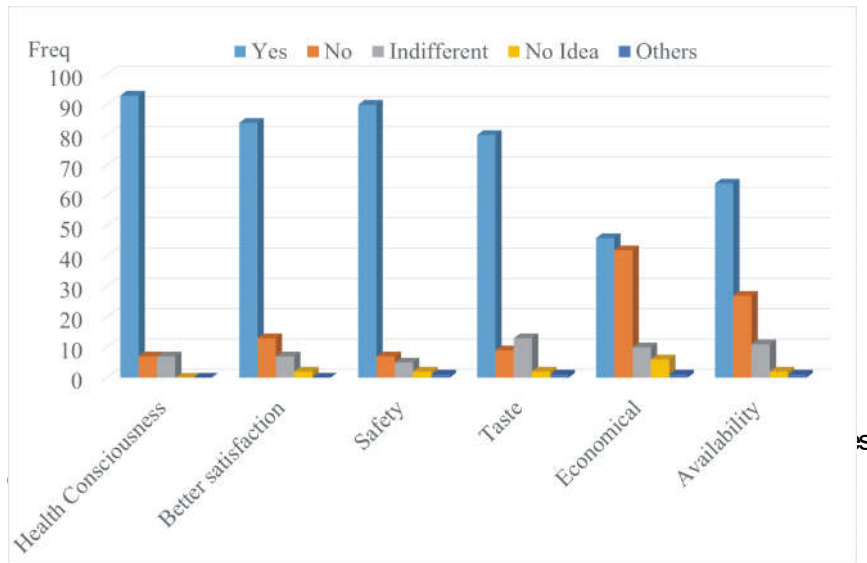
Table 6, which contains information on consumers' preferences, revealed that 80.4% of the respondents preferred organic vegetables to inorganic vegetables, 8.4% preferred inorganic vegetables to organic vegetables, 10.3% were indifferent. In comparison, 0.9% of the respondents had no idea of organic vegetable's preference to inorganic vegetables. This implies that the majority of the respondents preferred organic vegetables over inorganic vegetables.

Table 6: Preference for organic vegetables over inorganic vegetables

	Freq.	Percent
Yes	86	48.6
No	9	5.1
Indifferent	11	6.2
No Idea	1	0.6
No response	70	39.5
Total	177	100.0

On factors influencing consumers' preference for organic vegetables, fig. 11 revealed that 78.8% of the respondents claimed organic vegetables were healthier than inorganic vegetables, 7.7% affirmed that organic vegetable was not healthier when compared to inorganic vegetables, 8.7% said health consciousness of organic vegetable was not different from inorganic vegetable while 4.8% had no idea of the health impact of organic

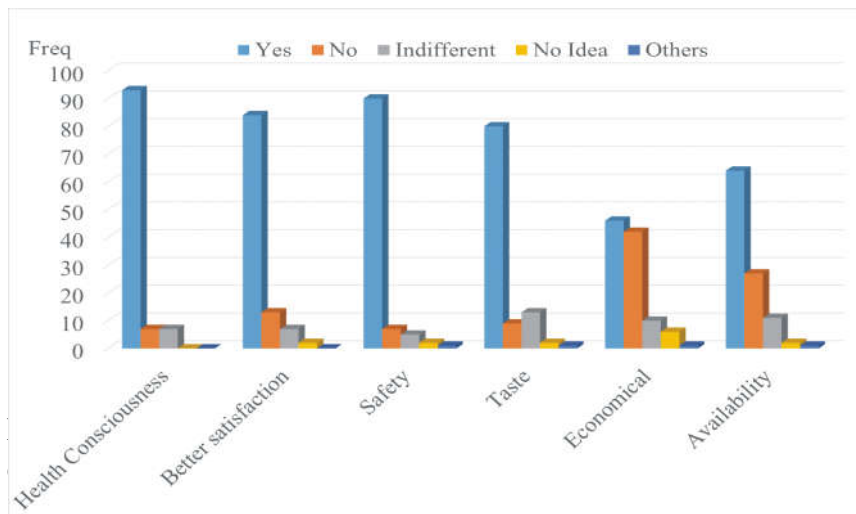
vegetable. This implies that most respondents preferred organic vegetables because of their health consciousness than inorganic vegetables.



An assessment of the respondents' view on which category of vegetables offers better satisfaction revealed that 79.2% of the sampled population claimed they derived better satisfaction from organic vegetables than inorganic vegetables, 12.3% of the respondents said they did not derive better satisfaction from organic vegetable compared to inorganic vegetables, 6.6% of the sampled population said there is no difference between the satisfaction of organic vegetable from inorganic vegetable while 1.9% of the respondents had no idea of the satisfaction of organic vegetable over inorganic vegetables (Fig. 11). This implies that most respondents preferred organic vegetables because they derived better satisfaction than inorganic vegetables. On safety, 85.7% of the respondents claimed organic vegetables are safer than inorganic vegetables, 6.7% of the population argued that organic vegetables are not safer than inorganic vegetables, 4.8% of the respondents argued that organic vegetable was not different from inorganic vegetables while 1.9% of the population have no idea of the safety of organic vegetable (Fig. 11). This implies that the majority of the respondents prefer organic vegetables because they are

safer than inorganic vegetables. About 76.2% of the respondents consented that organic vegetables had better taste than inorganic vegetables, 8.6% of the population said organic vegetables taste not better than inorganic vegetables, 12.4% of the respondents were indifferent in terms of taste, while 1.9% of the population have no idea of the taste of organic vegetable (Fig. 11). This implies that the majority of the respondents prefer organic vegetables taste to inorganic vegetables. About 43.8% of the respondents said organic vegetables are more economical than inorganic vegetables, 40.0% of the respondents had a reverse option, 9.5% of the respondents indifferent on price assessment, while 5.7% of the population have no idea on the subject (Fig. 11). This implies that most of the respondents prefer organic vegetables because they are more economical than inorganic vegetables. On availability of organic and inorganic vegetables, 61.0% of the sampled population claimed that organic vegetables are readily available than inorganic vegetables, 25.7% argued that inorganic vegetables are more available than organic vegetables, 10.5% of indifferent in their judgment, while 1.9% of the sampled consumers have no idea on availability (Fig. 11). This implies that respondents considered organic vegetables and inorganic vegetables as available commodities but depends on consumers' choice.

Fig. 12 on factors influencing consumers' willingness to pay for organic vegetables revealed that 55.7% of the sampled population claimed the price of organic vegetables influence their willingness to consume it, 31.1% of the respondents claimed that the price of organic vegetables do not influence their willingness to pay for it, 10.4% of the respondents argued that the price of organic vegetable is not different from inorganic vegetable while 2.8% of the population have no idea of the price of organic vegetable. This implies that most of the respondents affirm that organic vegetables' price influences their willingness to pay for them.



On household income, 28.8% of the sampled population argued that the household income influenced their willingness to pay for organic vegetables, 51.0% of the sampled population opined that the household income did not influence their willingness to pay for organic vegetables, 13.5% of the respondents indifferent in their opinion on willingness to pay while 6.7% of the respondents are of no idea on the influence of households' income (Fig. 12). This implies that the total household income did not influence the willingness to pay for organic vegetables among most respondents. About 25.5% of the sampled population consented that households' size influenced the willingness to pay for organic vegetables, 54.9% argued that households' size did not influence willingness to pay for organic vegetables, 13.7% indifferent in their evaluation of households' size, while 5.9% had no idea on households' size influence on willingness to pay for organic vegetables (Fig. 12). This implies that the household size did not influence the willingness to pay for organic vegetables among the respondents. On age, 20.2% of the respondents claimed that age influenced their willingness to pay for organic vegetables, 62.5% of the respondents argued that age was not a factor, 15.4% indifferent in their assessment of age as a factor, while only 1.9% of the respondents said they had no idea on age as a factor that can influence willingness to pay for organic vegetables (Fig. 12). This implies that most of the respondents affirmed that age did not influence their willingness to pay for organic vegetables.

CONCLUSION

There are high awareness and positive perception of an organic vegetable among the consumers. The consumers are educated and have good access to organic vegetables, but its high price was a constraint to its consumption. There is a positive perception of an organic vegetable among the respondents as being healthier, safer, tastier, and of better quality. Most of the respondents are willing to pay for organic vegetables. The study has also shown that consumers may be willing to pay for certain organic vegetables, particularly if they are educated about organic agriculture's health advantages over inorganic practices.

Recommendations

1. The majority of farmers are using chemical fertilisers to produce food without knowing the environmental and health implication. Government should create awareness and training program for farmers and also sensitise the public about organic food production.
2. Government should encourage organic farmers by providing good organic product market facilities, financial support, storage facilities, etcetera.
3. Government should provide good packaging facilities for organic product.
4. It is essential to develop more marketing area. As more numbers of consumers prefer organic products, there should be a regulated market facility for organic products
5. There should be an increase in the frequency of publicity and advertisement of organic food products and better taste which would influence organic food products. The influence of organic food products' advertisement with an increase in education will create greater awareness of organic agricultural products and encourage consumers to purchase them.

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