

Research Article

Consumer awareness and willingness to pay for organic vegetables in S.W. Nigeria

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Abstract

The move to organic agriculture which has gripped the developing world because of the harmful effects of the use of agrochemicals and inorganic fertilizers has reached Nigeria even though the issues of food adequacy still hold sway for a large number of consumers. Four years down the line that the Organic Agriculture Project in Tertiary Institutions of Nigeria started, this study was carried out in order to determine the response of randomly selected consumers in a community where organic vegetable production is growing. The study also sought to determine the consumer willingness to pay for organic vegetables and the factors that influence the decision. Data collected were analyzed using descriptive statistics. The respondents were mainly male, married with mean household size of five and mean age of about 40 years. Most (65.8%) of them had either Masters or Doctoral degrees. Most of the respondents said they had prior knowledge of organic farming, had seen and eaten organic vegetables before. The knowledge is probably based on management practice of farmers in the area whereby vegetables are grown with little or no use of chemical fertilizers or pesticides. They certainly had little knowledge of certified organic vegetables. About a third of them were willing to pay extra for organic vegetables. The mean premiums they were willing to pay ranged from 23% for cucumber to 73% for *ugwu* (fluted pumpkin). Many of the respondents agreed with the healthier, better quality characteristics of organic vegetables. This shows that in the event of extensive cultivation, there is a ready market in the south western part of Nigeria. It is suggested that more education be given on the distinction between certified and non-certified organic food.

Keywords: vegetables, consumer awareness, perceptions, willingness to pay

Introduction

Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity. Organic production systems are based on specific and precise standards of production which aim at achieving optimal agro-ecosystems which are socially, ecologically and economically sustainable [1]. It avoids the use of synthetic pesticides, herbicides, chemical fertilizers, growth hormones, antibiotics or gene manipulation. Instead, organic farmers use a range of techniques that help sustain ecosystems and reduce pollution. It dramatically reduces external inputs by refraining from the use of chemo-synthetic fertilizers, pesticides and pharmaceuticals. Instead, it allows the powerful laws of nature to increase both agricultural yields and disease resistance [2].

Vegetables are a common crop in Nigeria, grown and consumed by different groups of farmers. According to Ayinde [3], the system for sustainable vegetable production should increase the inherent productive capacity of natural and biological resources in step with demand.

The use of chemicals in vegetable production has been identified as a major source of health risk and a cause of extensive environmental damage. According to Lumpkin [4], food safety is a major concern as many of today's vegetable farmers inappropriately use toxic pesticides at pre- and post-harvest stages and this threatens the health of the farmer and consumers as well as contaminating the environment. Lumpkin argues that everyone (rich or poor), must have access to safe vegetables. The reduction of the use of chemical inputs through the adoption of organic agricultural production methods will help achieve these goals. There is growing market for organic vegetables among other products and farmers the world over are shifting their production practices to meet this challenge. In Nigeria however, organic agriculture had existed by default because of the unavailability and sparse use of chemical inputs by farmers. Others adopt the use of animal droppings as manure [5, 6]. Indeed Scialabba [7], notes that non-certified organic systems (indigenous models that follow organic principles by intent or by default) of several million small farmers may represent at least an equivalent share in subsistence agriculture of developing countries.

On the consumer side in Nigeria, there is not much information on the responses to organic products which up to a point can be regarded as new products. The wave of certified organic agriculture has only recently hit the shores of Nigeria. Dipeolu and Akinbode [5], found that some consumers were aware that some farmers used animal droppings as manure (that study did not determine whether the droppings were used solely or in conjunction with other inputs). Four years down the line, a number of scientists and farmers have been cultivating organic vegetables and other crops in various universities, research institutes and farms in the country including the University of Agriculture, Abeokuta. It is expected that these activities will have impacts on the immediate communities and beyond.

In addition, studies abound that show that the organic crop is more expensive than its conventional counterpart. According to Barkley [8], the production, distribution and marketing of organic food is more costly than conventional food because of the costs of segregation of organic products. There are no visual distinctions between organic and conventionally produced food and any product that is sold as “organic” must (1) meet the criteria for what the term “organic” refers to, (2) be kept separate from conventionally-produced food, and (3) be “certified” by a regulatory agency to ensure “truth in advertising.” Each of these three issues is expensive, leading to higher production costs and higher retail prices for organic food. In addition, Belicka and Bleidere [9], also report that the cost of organic food is higher than that of conventional food. 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. There is mounting evidence that if all the indirect costs of conventional food production were factored into the price of food, organic food would cost the same, or, more likely, be cheaper than conventional food.

This study set out to determine consumer awareness and perceptions of organic vegetables in Abeokuta and the willingness of consumers to pay a premium for the commodities.

Willingness to pay (WTP)

Willingness to pay (WTP) for a commodity is the amount of money a person would be willing to pay for a higher level of environmental or commodity quality. According to Golan and Kuchler [10], WTP is a measure of the resources individuals are willing and able to give up for a reduction in the probability of encountering a hazard that compromises their health. Spencer [11], opined that a theoretical correct measure of the value individuals attach to improvements in food safety is their 'WTP' for safer food. This, therefore, is the largest amount that an individual is willing to pay for a specific improvement in food safety. The notion of willingness to pay could be defined as the sum of money representing the difference between consumers' surplus before and after adding or improving a food product attribute [12]. Models that estimate consumers' willingness to pay when adding or enhancing a given quality attribute are based on the Lancaster approach [13], which maintains that consumers directly derive utility from the attributes of goods.

According to James [14], tools for measuring WTP (which include the contingent valuation, travel cost and hedonic pricing) can be used to answer questions such as how much consumers are willing to pay for a quality upgrade or what effect a particular government intervention might be. In this regard, consumers' willingness to pay (WTP) for organic food products can be measured using a direct valuation method such as the contingent valuation (CV). The procedure consists of a dichotomous choice (DC) question and a maximum WTP question. In the DC question, consumers are asked whether or not they are willing to pay a premium, to buy an organic vegetable instead of a conventional one. The amount they are willing to pay is a percentage over the price of the conventional product and differs across consumers. Consumers' responses are YES if they are willing to pay more for an organic vegetable or NO otherwise. Consumers are then asked for the exact premium they are willing to pay.

Methodology

The study was carried out in Abeokuta, Ogun State of Nigeria. It is expected that the results will be typical of the south western region of the country. A total of 152 respondents were randomly selected from the University of Agriculture. Primary data were collected from the respondents by means of a pre-tested questionnaire which was designed to obtain socioeconomic indices, information on consumer awareness, past experiences about organic products, buying preferences and willingness to pay premiums for selected organic vegetables. In addition, certain questions were designed to obtain the respondents' perceptions of organic vegetables over the conventional ones.

Analytical methods

Data collected were analyzed by the use of frequency tables and percentages to describe the socioeconomic characteristics of the respondents.

Results and Discussion

Socioeconomic characteristics of respondents

Majority (65.8%) of the respondents were male. They were mainly of the Yoruba group and 90.8% were married. Most (65.8%) had post graduate degrees. The mean age of the respondents was about 40 years. Most (55.3%) of the respondents had between 10 and 19 years working experience. The household sizes of the respondents ranged from one (1) to fifteen (15) with a mean of five (see Table 1).

Awareness of organic vegetables

The survey revealed that about 89% of the respondents have had a prior knowledge of organic vegetables and 72% had seen organic vegetables before. Further investigation however showed that about 56% of those who indicated that they had seen organic vegetables had seen the vegetables before 2000 (Table 2). The knowledge is probably based on management practice of farmers in the area whereby vegetables are grown with little or no use of chemical fertilizers or pesticides. They certainly had little knowledge of certified organic vegetables.

Table 1. Socioeconomic characteristics of respondents.

Variables	Frequency	Percentage
Age		
<30	12	7.9
30-39	57	37.5
40-49	65	42.8
50-59	18	11.8
Total	152	100
Gender		
Female	52	34.2
Male	100	65.8
Total	152	100
Marital Status		
Married	138	90.8
Others	14	9.2
Total	152	100
Educational level		
NCE/OND	8	5.3
HND/BSC	44	28.9
MSc / PhD	100	65.8
Total	152	100
Ethnicity		
Yoruba	117	77.0
Igbo	7	4.6
Others	28	18.4
Total	152	100
Working Experience		
<10	52	34.2
10-19	84	55.3
20+	16	10.5
Total	152	100
Years of Schooling		
20-29	65	42.8
30+	87	57.2
Total	152	100
Household size		
<5	98	64.5
5-9	52	34.2
10+	2	1.3
Total	152	100

Source: Survey data, 2008

Table 2. Knowledge and experience with organic vegetables.

Variable	Frequency	Percentage
Prior knowledge		
Yes	17	11.2
No	135	88.8
Total	152	100
Seen organic vegetables before		
Yes	110	72.3
No	36	23.7
Don't know	6	4
Total	152	100
Year seen		
>1980	9	5.9
1980 – 1989	17	11.1
1990 - 1999	15	9.8
2000 – 2008	31	20.3
Don't know	80	52.6
Total	152	100
Eaten organic vegetables before		
Yes	94	61.8
No	44	28.9
Don't know	14	9.2
Total	152	
When eaten		
>1980	11	7.2
1980 – 1989	10	6.5
1990 - 1999	10	6.5
2000 – 2008	30	19.7
Don't know	91	60.0
Total	152	100
Purchase of organic vegetables		
Yes	66	43.4
No	30	36.8
Don't know	56	19.7
Total	152	100
When purchased		
>1980	1	0.7
1980 – 1989	6	3.9
1990 - 1999	5	3.2
2000 – 2008	32	21.0
Total	108	71.0
Total	152	100

Source: Survey data, 2008

Willingness to pay for organic vegetables

The survey results gave an indication that nearly 64% of the respondents were willing to pay a premium for organic vegetables. Linking this with the socio economic characteristics of the respondents, (such as age and educational status), it was concluded that there is a potential market for organic vegetables in the study area. The percentages shown in Table 3 show that the highest percentage premium was recorded for organic pepper (500%) and it was only in organic tomato that there was an unwillingness to pay a premium (-40%).

Table 3. Premium for organic vegetables (%)

Vegetable	Minimum	Maximum	Mean
Okra	00	250	58.8
<i>Amaranth</i>	00	300	60.5
<i>Telfairia (fluted pumpkin)</i>	00	350	73.1
Tomato	-40	200	37.6
<i>Celosia</i>	00	250	53.4
Cucumber	00	100	22.8
Pepper	00	500	66.6

Source: Survey data, 2008

Table 4: Perceptions about organic over conventional vegetables.

Index of perception	Frequency	Percentage
Healthier		
Disagree	11	7.2
Undecided	45	29.6
Agree	96	43.1
Total	152	100
Better quality		
Disagree	13	8.6
Undecided	51	33.6
Agree	88	57.9
Total	152	100
Tastier		
Disagree	17	11.2
Undecided	70	46.1
Agree	65	42.7
Total	152	100
More expensive		
Disagree	44	28.9
Undecided	64	42.1
Agree	44	28.9
Total	152	100
No harmful effect		
Disagree	18	11.8
Undecided	62	40.8
Agree	72	47.4
Total	152	100

Source: Survey data, 2008

The willingness to pay the premium may be attributed to the perceptions of the consumers. Most (63.1%) of the respondents perceived that organic vegetables were healthier, tastier (42.7%), have no harmful effects (47.4%) and are of better quality (57.9%) than conventional vegetables. Interestingly, only 28.9% indicated that organic vegetables were more expensive (Table 4).

Conclusions

This study has shown that consumers are indeed aware of the fact that vegetables can be grown organically. They also agree that organic vegetables are healthier, tastier, have no harmful effects and are of better quality than the conventional vegetables. It was observed however, that not enough seems to be known about certified organic vegetables, particularly as the community is largely educated and is in close proximity to the efforts in organic farming. If the population which is in close proximity, and is largely educated, cannot distinguish default organic vegetables and certified organic vegetables, it is quite doubtful whether the ordinary man on the street would be able to make that distinction. There is therefore the need for widespread awareness programmes on what it is and what it is not. Perhaps a step in this direction could be the use of distinct and properly labeled packaging.

The study has also shown that consumers may be willing to pay a premium for certain organic vegetables, particularly if they are educated about the health advantages of organic agriculture over conventional practices. It is to be noted that a potentially huge market exists in the south western part of the country for organic vegetables.

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