



International Journal of  
**Agricultural  
Research**

ISSN 1816-4897



Academic  
Journals Inc.

[www.academicjournals.com](http://www.academicjournals.com)

## **Buyer-Seller Perceptions of Quality: A Case of Catfish Farmers and Wholesalers in Niger Delta, Nigeria**

S.B. Ohen, G.E. Umeze and S.O. Abang

Department of Agricultural Economics and Extension, Faculty of Agriculture, University of Calabar, Calabar, Nigeria

*Corresponding Author: S.B. Ohen, Department of Agricultural Economics and Extension, Faculty of Agriculture, University of Calabar, Calabar, Nigeria*

### **ABSTRACT**

This study examined buyer-seller perceptions of quality amongst catfish farmers and wholesalers in Niger Delta, Nigeria. Data was collated from 88 farmers and 103 wholesalers selected using a multi stage random sampling and snowball sampling techniques, respectively. Frequency, mean and standard deviation were used to analyze data on socio economic profiles. Independent samples Kruskal-Wallis test was used to determine if there is any significant difference between the mean ranking by the farmers and wholesalers. Results showed that majority of the catfish farmers were male (85.2%) whereas all the wholesalers of catfish were females. The farmers have B.Sc as the highest level of education attained by majority of them (51.1%) while, the most of the wholesalers (40%) had secondary education as their highest level of education attained. Results also showed that the farmers have more years of experience with 52.3% of them having spent between 6-10 years so far in catfish farming as against 48.6% of the wholesalers who have also spent between 6-10 years in catfish trading. More results revealed that all attributes were ranked in opposite direction by farmers and wholesalers except freshness of produce, sturdiness and maturity which were ranked by both groups as being the most important attributes. Results from hypothesis test revealed that null hypothesis was retained for attributes like freshness, sturdiness and maturity. The study recommends that programs, policies and procedures aimed at defining the quality characteristics and standards of agricultural produce and particularly for catfish to be set in place. The need for capacity building for all chain functionaries to ensure efficiency and effectiveness of catfish value chain was also highlighted.

**Key words:** Quality attributes, buyer-seller perception, catfish farmers and wholesalers, value chain actors, market functionaries

### **INTRODUCTION**

Buyers and sellers perceptions of the quality of a product or service and their overall satisfaction have some observable indicators. According to Govindasamy *et al.* (1997), the terms customer satisfaction and perception of quality are labels used to summarize a set of observable actions related to the product and/or service. Burnill and Ledolter (1999) opined that one popular view is that quality is intangible, similar to truth, beauty and goodness. It is a feature of excellence or an ideal. More so, quality is seen as a combination of characteristics that are critical in establishing a products' consumer acceptability, including fitness of use, freedom from deficiencies and provision of satisfaction (Satin, 1997; Fredendall and Hill, 2001).

Agricultural product quality as defined by Opara (2000) involves all of the attributes, characteristics and features of a product that the buyer, purchaser, consumer or user expects and stated further that quality assurance involves planned activities designed to consistently satisfy customer expectations by defining objectives, planning activities and controlling variability. The food industry according to Satin (1997) defines quality as an integrated measure of purity, flavor, texture, colour, appearance and workmanship. Quality also refers to a products consistent adherence or conformance to a standard, specification or requirement (Fredendall and Hill, 2001).

From the definitions on quality, it is evident that there are divergent views about quality and its measures. Collins (1994) believed that there are contradictory perceptions of quality due to differences in background and training while, Hill and Chung (1995) stressed that a persons' view of quality depends on his/her approach to that understanding. The differences in perception of quality between farmers and other marketing chain actors/market functionaries for a particular commodity may contribute significantly to inefficiency in that marketing system. In Nigeria, market orientation among farmers still needs to be developed in order of the marketing system to become more responsive to consumer needs. Efficiency in the marketing system encompasses the cost of performing marketing functions, the quality of good/service and the quantity and price of goods and services. Several studies have been conducted on increasing farmers' production, however, little or no emphasis is placed on the efficiency of the marketing systems in terms of synchronizing or harmonizing the perceptions of the farmers and consumers in terms of quality. Yet these studies are relevant for making informed policy decisions. In recent times, the Nigerian government has increased its effort on promoting market oriented approaches to production through its Agricultural Transformation Agenda (ATA). This is to enhance markets and marketing activities and to provide policy support. It is, therefore, necessary to conduct such researches in support of these efforts. Fish farming is among the varieties of agricultural practices which is predominant in the coastal states of Nigeria. Currently, there is observed increase in the population of fish farms and farmers. Fishing is no longer restricted to the wild alone, fish farms can be found around towns and villages even behind people's homes (Ugboma, 2010).

The general objective of this study is to assess buyer-seller perceptions of quality using catfish farmers and wholesalers in Niger Delta, Nigeria. Specifically, the study seeks to:

- Ascertain the socio economic characteristics of respondents
- Examine the desired attributes of quality perceived by farmers
- Examine the desired attributes of quality perceived by wholesalers
- Compare farmers and wholesalers' responses
- Make policy recommendations

A hypothesis was designed to access the fullfilment of the objectives.

Ho: The distribution of desired quality attributes is the same across the categories of market functionaries

## **METHODOLOGY**

**Study area:** Niger Delta, the delta of the Niger River in Nigeria, is a very densely populated region sometimes called the Oil Rivers because it was once a major producer of palm oil. The area was the British Oil Rivers Protectorate from 1885 until 1893, when it was expanded and became the Niger Coast Protectorate. The Niger Delta, as now defined officially by the Nigerian government, covers

an area of 70,000 km<sup>2</sup> with sandy coastal ridge barriers, brackish or saline mangroves, permanent and seasonal swamp forests as well as low land rain forest with the entire area crisscrossed by a large number of rivers rivulets, streams, canals and creeks (NNPC, 2005). Niger Delta region consists of Bayelsa, Delta, Rivers, Abia, Akwa-Ibom, Cross River State, Edo, Imo and Ondo States. Some 31 million people of more than 40 ethnic groups including the Bini, Efik, Ibibio, Igbo, Annang, Oron, Ijaw, Itsekiri, Isoko, Urhobo, Ukwuani and Kalabari, are among the inhabitants in the Niger Delta, speaking about 250 different dialects. This study was conducted in Bayelsa, Delta and Rivers States.

**Sampling technique:** About 193 respondents were selected for the study using multistage sampling. In the first stage, 3 states; Bayelsa, Delta and Rivers were randomly selected from the 9 states that make up the Niger Delta. For the second stage, 88 farmers were randomly selected from a sampling frame of fish farmers in Delta (48), Bayelsa (5) and Rivers (25). Snowball sampling was used in locating the wholesalers based on the names of key wholesalers mentioned by fish farmers. Hence, 105 wholesalers were interviewed in the region, Delta (57), Bayelsa (20) and Rivers (28).

**Data collection:** Data for this study was collected using methods such as key informant interviews and focus group discussions among the various chain actors in catfish marketing (farmers, wholesalers). A structured questionnaire was administered to obtain information on socio economic profiles and ranking of desired attributes. Secondary data was obtained from several published texts and journals.

**Statistical analysis:** Data was analyzed using descriptive statistics like frequency, mean and standard deviation. A 4 point likert rating scale was used to analyze the desired quality attributes of catfish by farmers and wholesalers into very important, moderately important, slightly important and unimportant. The attributes were ranked using nominal values of 4, 3, 2 and 1, respectively. Independent Samples Kruskal-Wallis Test was used to test if there was any significant difference between the mean ranking by the farmers and wholesalers. The Independent Samples Kruskal-Wallis Test equation is given by:

$$H = \left[ \frac{12}{N(N+1)} \times \sum \frac{T_c^2}{n_c} \right] - 3 \times (N+1)$$

Where:

H = Kruskal-Wallis test statistic

T<sub>c</sub> = Total of the ranks for each group

N = Total number of participants (all groups)

N<sub>c</sub> = No. of participants in each group

## RESULTS AND DISCUSSION

**Catfish farmer and wholesalers socio economic profiles:** Table 1 shows the socio-economic profiles of catfish farmers and wholesalers in the study area. Data on gender shows that

majority of the catfish farmers were male (85.2%) whereas all the wholesalers of catfish were females. This could be due to the fact that fish farming is more rigorous than fish trading. Further result revealed that majority of the farmers (56.8%) were aged between 31-40 years whereas most of the wholesalers (46.7%) were between 41-50 years. The farmers have B.Sc as the highest level of education attained by majority of them (51.1%) while, the most of the wholesalers (40%) had secondary education as their highest level of education attained. Results also showed that the farmers have more years of experience with 52.3% of them having spent between 6-10 years so far in catfish farming as against 48.6% of the wholesalers who have also spent between 6-10 years in catfish trading. These results from age, educational level and experience combine to suggest that both the farmers and wholesalers were well vast in this enterprise and hence were in a position to give concrete information on perceptions of quality attributes.

**Desired quality attributes of catfish:** Attributes to define quality of fish used in this study came from the farmers themselves during the pre-test survey visits. This was complemented from secondary sources. Farmers were asked to rank these attributes according to the order of importance, 4 being very important and 1 being unimportant.

The attributes of catfish that were important from the perspective of the farmers were those over which they had some degree of control like maturity at harvest, size, weight and sturdiness which depends on the feeding regime adopted by the farmer as well as freshness of their produce.

Table 1: Distribution of respondents according to their socio economic profiles

|                               | Catfish farmers |            | Wholesalers |            |
|-------------------------------|-----------------|------------|-------------|------------|
|                               | Frequency       | Percentage | Frequency   | Percentage |
| <b>Gender</b>                 |                 |            |             |            |
| Female                        | 13              | 14.80      | 105         | 100.00     |
| Male                          | 75              | 85.20      | 0           | 0.00       |
| Total                         | 88              | 100.00     | 105         | 100.00     |
| <b>Age</b>                    |                 |            |             |            |
| 20-30                         | 11              | 12.50      | 17          | 16.20      |
| 31-40                         | 50              | 56.80      | 38          | 36.20      |
| 41-50                         | 24              | 27.30      | 49          | 46.70      |
| 51-60                         | 3               | 3.40       | 1           | 1.00       |
| Total                         | 88              | 100.00     | 105         | 100.00     |
| <b>Higher education level</b> |                 |            |             |            |
| B.Sc                          | 45              | 51.10      | 29          | 27.60      |
| Diploma                       | 21              | 23.90      | 25          | 23.80      |
| Primary                       | 2               | 2.30       | 9           | 8.60       |
| Secondary                     | 20              | 22.70      | 42          | 40.00      |
| Total                         | 88              | 100.00     | 105         | 100.00     |
| <b>Farm/trade experience</b>  |                 |            |             |            |
| >15                           | 0               | 0.00       | 11          | 10.50      |
| 0-5                           | 37              | 42.00      | 30          | 28.60      |
| 11-15                         | 5               | 5.70       | 13          | 12.40      |
| 6-10                          | 46              | 52.30      | 51          | 48.60      |
| Total                         | 88              | 100.00     | 105         | 100.00     |

Source: Field data, 2013

Table 2: Farmers ranking of desired quality attributes of catfish

| Attributes              | Mean response | Standard deviation |
|-------------------------|---------------|--------------------|
| Freshness               | 4.00          | 0.00               |
| Sturdy                  | 4.00          | 0.00               |
| Good taste              | 2.34          | 0.64               |
| Cooking characteristics | 2.16          | 0.57               |
| Desired quantity        | 1.73          | 0.85               |
| Good colour             | 1.57          | 0.72               |
| Competitive prices      | 1.70          | 0.81               |
| Maturity                | 4.00          | 0.00               |
| No skin injury          | 3.18          | 0.42               |
| Size                    | 3.33          | 0.66               |
| Weight                  | 3.74          | 0.62               |

Source: Field survey, 2013

Table 3: Wholesalers ranking of desired quality attributes of catfish

| Attribute               | Mean | Standard deviation |
|-------------------------|------|--------------------|
| Freshness               | 4.00 | 0.00               |
| Sturdy                  | 4.00 | 0.00               |
| Good taste              | 4.00 | 0.00               |
| Cooking characteristics | 4.00 | 0.00               |
| Desired quantity        | 3.62 | 0.49               |
| Good colour             | 3.62 | 0.49               |
| Competitive prices      | 3.74 | 0.70               |
| Maturity                | 4.00 | 0.00               |
| No skin injury          | 2.99 | 0.10               |
| Size                    | 1.95 | 0.81               |
| Weight                  | 1.98 | 0.88               |

Source: Field survey, 2013

The farmers decide when to harvest their fish and control the quality of their produce by preventing infestation or attack by predators through proper cultural practices. Size and sturdiness of produce affected the price they received for their produce hence, farmers tended to give these quality attributes high rankings. Skin injury is caused by activities of predators and high stocking density. This is not considered a key issue for farmers which may be due to the fact that fish farmers have over time developed skills in terms of stocking density and proper handling. Farmers believe that high quality fish should be good to look at, that is large and sturdy. However, very few farmers mentioned the nutritional content of fish as a descriptor of quality (Table 2). Most of their definitions rested on the physical attributes. While some farmers related quality to price, this construct did not become part of the definitions that farmers used to define quality.

Wholesalers were asked to rank the importance of certain attributes that form the criteria in their decision to purchase catfish on a scale of 1-4 where 1 is unimportant and 4 are very important.

Table 3 shows that the respondents were unanimous in ranking freshness, sturdy, good taste cooking characteristics and maturity as very important quality attributes. A sturdy catfish was an indication of visually appealing fresh and saleable fish. Competitive prices ranked second while, both desired quantity and colour was ranked third. Since respondents sold the produce they bought, it was important to have enough in quantity to supply to their downstream buyers. The

Table 4: Comparison of farmers' responses with those of wholesalers

| Attributes              | Farmers       |                    |      | Wholesalers   |                    |      |
|-------------------------|---------------|--------------------|------|---------------|--------------------|------|
|                         | Mean response | Standard deviation | Rank | Mean response | Standard deviation | Rank |
| Freshness               | 4.00          | 0.00               | 1    | 4.00          | 0.00               | 1    |
| Sturdy                  | 4.00          | 0.00               | 1    | 4.00          | 0.00               | 1    |
| Good taste              | 2.34          | 0.64               | 5    | 4.00          | 0.00               | 1    |
| Cooking characteristics | 2.16          | 0.57               | 6    | 4.00          | 0.00               | 1    |
| Desired quantity        | 1.73          | 0.85               | 7    | 3.62          | 0.49               | 3    |
| Good colour             | 1.57          | 0.72               | 9    | 3.62          | 0.49               | 3    |
| Competitive prices      | 1.70          | 0.81               | 8    | 3.74          | 0.70               | 2    |
| Maturity                | 4.00          | 0.00               | 1    | 4.00          | 0.00               | 1    |
| No skin injury          | 3.18          | 0.42               | 4    | 2.99          | 0.10               | 4    |
| Size                    | 3.33          | 0.66               | 3    | 1.95          | 0.81               | 6    |
| Weight                  | 3.74          | 0.62               | 2    | 1.98          | 0.88               | 5    |

Source: Field survey, 2014

fourth ranked attribute was no skin injury. Weight and Size ranked fifth and sixth, respectively.

Table 4 shows the responses of the farmers and wholesalers on all attributes. Catfish farmers were asked to rank what they think their customers want. On the other hand, the wholesalers were asked to rank the attributes that are important to them when purchasing catfish from farmers. The results revealed that all attributes were ranked in opposite direction by farmers and wholesalers except freshness of produce, sturdiness and maturity which were ranked by both groups as being the most important attributes.

The second and third most important attribute for farmers were weight and size while these were fifth and sixth most important attribute to wholesalers. The second most important attribute to wholesalers was competitive price while the third most important attribute for them was having produce available in quantities required and good colour. Unlike most farmers who sell only to wholesalers, wholesalers have to sell to other wholesalers, retailers and consumers with varying preferences, so they must have quantities that meet their various downstream buyers request. The farmers also put least importance on providing produce that is competitively priced. However, the wholesalers considered it to be the second most important attribute. Farmers are more concerned with disposing their produce as soon as they are matured to avoid additional production cost, wholesalers on the other hand have to set a lower price for the products since they sell these produce to various categories of end users and profit maximization is their ultimate goal.

Farmers and the wholesalers seem to be laying emphasis on different aspects of catfish quality. Farmers appear not to be aware of what their market wants. There is, therefore, need to coordinate farmer and buyer product specifications in order to achieve increased efficiency in the value chain for catfish.

**Result of hypothesis test:** The two sets of rankings were tested using Independent Samples Kruskal Wallis Test at 5% significance level. The results are shown in Table 5 and 6.

Null hypothesis was rejected for attributes like good taste, cooking characteristics, desired quantity, good colour, no skin injury, competitive price, size and weight in favour of the alternative

Table 5: Test statistics results of Kruskal Wallis Test

| Test Statistics <sup>a,b</sup> |           |        |            |                         |                  |             |                    |          |                |        |         |
|--------------------------------|-----------|--------|------------|-------------------------|------------------|-------------|--------------------|----------|----------------|--------|---------|
| Parameters                     | Freshness | Sturdy | Good taste | Cooking characteristics | Desired quantity | Good colour | Competitive prices | Maturity | No skin injury | Size   | Weight  |
| Chi-Square                     | 0.000     | 0.000  | 174.043    | 176.337                 | 127.057          | 139.226     | 126.305            | 0.000    | 19.251         | 89.992 | 120.571 |
| df                             | 1         | 1      | 1          | 1                       | 1                | 1           | 1                  | 1        | 1              | 1      | 1       |
| Asymp. Sig.                    | 1.000     | 1.000  | 0.000      | 0.000                   | 0.000            | 0.000       | 0.000              | 1.000    | 0.000          | 0.000  | 0.000   |

<sup>a</sup>Kruskal Wallis Test, <sup>b</sup>Grouping variable: Market functionary

Table 6: Hypothesis test summary of independent samples of Kruskal Wallis Test

| Null hypothesis   | Sig.  | Decision                   |
|---|-------|----------------------------|
| Distribution of freshness is the same across categories of market functionary               | 1.000 | Retain the null hypothesis |
| Distribution of sturdy is the same across categories of market functionary                  | 1.000 | Retain the null hypothesis |
| Distribution of good taste is the same across categories of market functionary              | 0.000 | Reject the null hypothesis |
| Distribution of cooking characteristics is the same across categories of market functionary | 0.000 | Reject the null hypothesis |
| Distribution of desired quantity is the same across categories of market functionary        | 0.000 | Reject the null hypothesis |
| Distribution of good colour is the same across categories of market functionary             | 0.000 | Reject the null hypothesis |
| Distribution of competitive prices is the same across categories of market functionary      | 0.000 | Reject the null hypothesis |
| Distribution of maturity is the same across categories of market functionary                | 1.000 | Retain the null hypothesis |
| Distribution of No. skin injury is the same across categories of market functionary         | 0.000 | Reject the null hypothesis |
| Distribution of size is the same across categories of market functionary                    | 0.000 | Reject the null hypothesis |
| Distribution of weight is the same across categories of market functionary                  | 0.000 | Reject the null hypothesis |

Asymptotic significances are displayed. Significant level is 0.05

hypothesis which states that the distribution of these attributes are not the same across the categories of market functionaries. However, null hypothesis which states that the distribution of these attributes are the same across the categories of market functionaries was retained for attributes like freshness, sturdiness and maturity.

## CONCLUSION

Farmers use quality attributes that are within their control such as maturity, weight and size. Weight and freshness is important to them because it affects their earnings. However, the farmers do not feel that it is within their financial or physical power to consider other seemingly uncontrollable quality attributes. Many of the problems related to the quality of the produce is, however, due to the production practices of farmers and the low level of their awareness of what is important to the market.

Improving the quality in the catfish value chain in the Niger Delta Region must begin with raising the capacity of farmers to produce quality fish and helping them understand market requirements for quality. Their perceptions are based on reality in terms of harvest time and physical attributes which they can control, wholesalers on the other hand base their understanding of quality on their own reality which is demanded by retailers and the reliability of supply. Helping both farmers and intermediaries see the entire value chain rather than focusing on only their part of the chain can help promote efficiency in the chain. The promotion of cooperation and partnership to sustain the entire chain will lead to improved value chain efficiencies. This will mean a reorientation for all stakeholders and capacity building for farmers to increase their production skills and market orientation. This study recommends that programs, policies and procedures aimed at defining the quality characteristics and standards of agricultural produce and particularly



for catfish be set in place. Also, there should be a system of information dissemination for all value chain actors to access. There is also a need for capacity building for all chain functionaries to ensure efficiency and effectiveness of catfish value chain.

## **REFERENCES**

- Burnill, C.W. and J. Ledolter, 1999. *Achieving Quality Through Continual Improvement*. John Wiley and Sons, Inc., New York, USA., ISBN-13: 9780471092209, Pages: 630.
- Collins, P., 1994. Approaches to quality. *TQM Mag.*, 6: 39-43.
- Fredendall, L.D. and E. Hill, 2001. *Basics of Supply Chain Management*. The St. Lucie Press/APILS Series on Resource Management, USA., ISBN-13: 9781420025767, Pages: 264.
- Govindasamy, R., J. Italia and C. Liptak, 1997. Quality of agricultural produce: Consumer preferences and perceptions. P-02137-1-97, New Jersey Agricultural Experiment Station, New Jersey, USA., February, 1997, pp: 1-34.
- Hill, R.G. and M.C. Chung, 1995. Quality assurance and the myth of rationality. *Int. J. Health Care Qual. Assur.*, 8: 18-22.
- NNPC, 2005. *Towards rebuilding the Niger Delta 1999-March 2004*. Nigeria National Petroleum Corporation (NNPC), Abuja, Nigeria.
- Opara, L.U., 2000. New Market-Pull Factors Influencing Perceptions of Quality in Agribusiness Marketing (or Quality Assurance for Whom)? In: *Quality Assurance in Agricultural Produce: Proceedings of the 19th ASEAN/1st APEC Seminar on Postharvest Technology*, Ho Chi Minh City, Vietnam, 9-12 November 1999, Johnson, G.I. and ACIAR (Eds.). Australian Center for International Agricultural Research (ACIAR), Australia, ISBN: 9780642449399, pp: 244-252.
- Satin, M., 1997. *Food quality and international trade*. Food and Agriculture Organization of the United Nations, USA.
- Ugboma, M.U., 2010. *Access to agricultural information by fish farmers in Niger Delta region of Nigeria*. Library Philos. Pract.