



The quality of local products in the face of the challenges of food sovereignty: the case of local rice

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Abstract: Food sovereignty is currently a major challenge for developing countries, especially in Africa, where rice is a staple food. In Senegal, among the most imported cereals, rice holds a significant place. The quantity consumed each year is rapidly evolving, estimated at around 206,000 tons in 2007, with the assumption that this demand will continue to grow due to accelerated urbanization and a rapidly increasing population, creating a deficit ranging between 66 and 76% that needs to be filled (Hathie and Ndiaye, 2015). To fill this deficit, Senegal imports enormous quantities of rice (7 to 8% of total imports (ANSD, 2007), and these imports have harmful effects on the Senegalese trade balance, resulting in a significant loss of foreign currency, as Senegal loses every year, approximately 191 billion in terms of rice imports. However, achieving food sovereignty is not limited to increasing national rice production. It is also about ensuring the quality of local rice capable of competing with imported rice, in order to convince consumers to fully adopt it. The objective of this article is to determine the determining factors of the quality of local rice and to show how Senegalese households appreciate the quality of local rice. For so doing, two samples of 225 and 258 (the first for the exploratory phase and the second for the confirmatory phase) are analyzed using SPSS and AMOS software. The results reveal three essential criteria that determine consumer choice and allow them to appreciate the quality of local rice.

Keywords: perceived quality, local rice; food sovereignty.

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Introduction

Food sovereignty is one of the strategic axes of the new economic and social policy included in the new Senegal 2050 framework. This food sovereignty depends not only on the quantity produced, but also on the social and cultural acceptability of local products. Indeed, if local products do not meet the quality expectations perceived by consumers, they will be neglected by imports.

In Senegal, rice occupies a good place among the most imported cereals. It represents 34% of the volume of national cereal consumption (Kelly *et al*, 1999; Fall, 2007). The average consumption of rice in Senegal per capita is 90 kg per year (ANSD¹, 2007). The quantity consumed each year is growing rapidly and was around 206,000 tonnes in 2007 with the assumption that this demand will continue to increase due to the accelerated urbanization of a galloping population, thus creating a

deficit varying between 66 and 76% to be filled (Hathie and Ndiaye, 2015). To fill this deficit, Senegal imports enormous quantities of rice (7 to 8% of total imports (ANSD, 2007) and these have harmful effects on the Senegalese trade balance, leading to a drain on foreign currency, because Senegal loses approximately 191 billion each year in terms of rice imports. Moreover, rice alone constitutes nearly 10% of the trade balance (ANSD, 2007) and this phenomenon tends to increase over time because national production increases less quickly than consumption, which it only partially covers.

This strong dependence hinders countries in their food sovereignty policy, which can be understood as the right of peoples and nations to define their own agricultural and food policies and to guarantee sufficient, healthy, culturally appropriate and locally produced food.

However, Senegal has enormous agricultural potential which is:

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- **Natural and geographical potential:** Senegal has fertile soils in the Senegal River valley (Saint-Louis, Matam, Podor, Dagana) and Casamance (Ziguinchor, Sedhiou, Kolda), Anambé (Kolda, Anambé basin) and Niayes and peri-urban areas.
- **Human and socio-economic potential:** traditional crops mastered in Casamance for centuries, availability of rural labor, presence of cooperatives and EIGs and producers, guaranteed domestic market.
- **Technological and institutional potential:** introduction of new high-yield varieties (MERICA rice, Sahel rice), state support via programs (PRACAS²), partnerships with organizations (FAO³, IFAD⁴).

However, despite this enormous potential and the many efforts made, locally produced rice is less competitive than imported rice due to consumption habits but also because of the poor image among most households, who believe that local rice is of lower quality and does not meet their needs (Demont *et al.*, 2015).

This article aims to determine the items that drive the perceived quality of local rice and to describe how Senegalese households appreciate the quality of local rice. To this end, two research questions are formulated:

- **What are the determining factors of the quality of local rice?**
- **How do consumers assess the quality of local rice?**

The answers to these two questions will allow us to understand the key success factors for the marketing of local rice and the degree of appropriation of local rice by consumers. Thus, at the end of this article, we will propose a commercial strategy focused on quality and communication so that consumers integrate the consumption of local rice into their eating habits. This appropriation of local rice thus undoubtedly constitutes an essential step towards food sovereignty.

This article begins by providing an overview of the literature on perceived quality. The research methodology is then described. Finally, the presentation of the results is followed by the conclusion.

I. The Notion of Quality

The notion of quality is polysemic and its understanding often poses problems and makes the concept sometimes vague and very ambiguous. Thus, for some authors, quality is a vague concept, which makes measurement and evaluation very problematic. This also leads Cusins (1994) to say that "*I don't know how to define quality, but I know when it is lacking.*"

Etymologically: quality is borrowed from the philosophical Latin "qualitas" formed from qualis "qual" way of being, attribution proper to being, and in particular the sensitive and non-measurable aspect of things" (Robert, 1st edition 1973).

The many definitions gleaned here and there from our readings confirm that the concept of quality is multidimensional and several

definitions have been proposed. The following table lists some definitions of quality.

Table 1. Definition of quality.

Authors	Definitions
Peter and Waterman (1982)	Quality is considered excellence
Feigenbaum (1961)	Quality as a value
Juran and Gryna (1988)	Quality is conformity to the intended use
Gilmore (1974)	The quality is as per specifications
Crosby (1979)	Quality is anything that is required or has zero defects.
Parasuraman (1988)	Quality is anything that meets or exceeds consumer requirements.

Source: Authors.

From all these definitions, three points of view emerge, most often adopted by these authors when they refer to quality; either quality is defined as a criterion or value in relation to other products or by its capacity to satisfy consumers, but the term which often comes up is that of conformity.

I-1. Quality: Compliance with standard norms

To define quality, the term that seems most appropriate to highlight its intrinsic nature is that of conformity. Conformity with what is wanted or desired (Crosshy, 1979), conformity with what is perceived (Parasuraman *et al.*, 1985) and finally, conformity with what is certainly produced (Feigenbaum, 1961; Crosby, 1979).

The approach adopted by these authors to defining quality is interesting because it refers to the existence first of a reference model or standard and a basis of comparison to measure the degree of resemblance and judge its value. Furthermore, the importance of defining quality using this approach lies in the fact that it lays the foundations for the measurement of quality which consists of quantifying and comparing. From this perspective, Neely *et al.* (1995) define quality as conformity with specifications previously defined by users or requesters. Also, AFNOR⁵ (1979) considers quality as "*an appropriate set of pre-established and systematic provisions intended to give confidence in the regular achievement of the required quality*".

I-2. Quality as a prerequisite for satisfaction

Other authors or international institutions insist on defining quality on its capacity to satisfy needs. This includes the definition of AFNOR which, according to it, "*quality is the ability of a product or service to satisfy the needs of users*"; that of the International Organization for Standardization (ISO) which presents a similar definition "it is the set of properties and characteristics of a product, process or service which give it its ability to satisfy expressed or explicit needs"

These numerous research on quality identify two categories of quality: product quality and consumer quality, which can be grouped into objective quality (relating to the attributes of the

² Program to Accelerate the Pace of Senegalese Agriculture

³ Food and Agriculture Organization of the United Nations

⁴ International Fund for Agricultural Development

⁵ French Association for Standardization

product) and subjective quality and predictive quality (relating to the perception and expectations of the consumer).

I-3. Perceived quality

The concept of perceived quality covers all perceptible, sensitive and sensory dimensions: both the services provided (benefits) and the characteristics that express a promise of quality. This first concept is of American origin (derived from PIMS studies, which we will discuss later), it considers that perceived quality constitutes customer satisfaction and represents a global system of judgment. It considers everything that the customer can perceive, and which induces a level of satisfaction for him.

It can also be defined as the set of sensitive and sensory impressions, as well as clues that seduce and attract from the first glance, interpreted by the customer as a promise of quality giving him confidence, and which satisfy him in use. Perceived quality thus defined is based on three components that coexist and form a "consistent system", in other words a whole that must be coherent.

Morgan (1985) and Parasuraman *et al.* (1985) note a gap in perception of quality between company managers and consumers. These authors emphasize the need to focus primarily on the perceptions of consumers who decide whether or not to purchase the product or service: this is the perceived quality approach (Garvin, 1984). The aim here is to define this concept more precisely and to study its formation process.

I-3-1. The dimensions of product quality

Panigyrakis (1989) defines perceived quality as "the ability of a product or service to satisfy the consumer's needs." He identifies five dimensions of quality in the food industry: dietary and nutritional, sensory, convenience, social and psychological, and access conditions (price, availability, etc.). The analysis of consumer choice has led to two approaches:

The economic approach which can be summarized in three types of attributes: the sought attributes which are of a nature to analyze and judge a priori the quality of a product, the experience attributes, which can only be evaluated during or after consumption, the belief attributes which apply to products whose qualities cannot be evaluated by the customer, even after consumption. We also note the attributes of consumption contexts, which correspond to a place (at home, in a restaurant, etc.), a time (during a meal, outside of a meal) and a consumption situation (alone, with family, etc.).

According to Olson *et al.* (1972), the marketing approach distinguishes between objective/intrinsic indicators and subjective/extrinsic indicators.

Intrinsic quality indicators are directly linked to the product, such that any change in it results in a change in one or more of these indicators. They are often determined by the production process (shape, color, structure, etc.). However, in the absence of objective elements, the consumer resorts to indicators extrinsic to the product such as price, the image of the manufacturer, the image of the point of sale, the image of the seller, etc.

Today, the notion of quality in food is based on the following dimensions (non-exhaustive list) resulting from the numerous studies carried out by the CREDOC Consumption department on the concept of quality:

- The ability to satisfy the needs, expectations of consumers and their developments, characterized in particular by a kind of consumerist hedonism and by the search for the taste values of products.
- The ability to respond to nutritional and health functions.
- The need for impeccable health security.
- The implementation of good practices, both at the production level and during technological transformation processes.
- Reassurance of the origin of the products, through their authenticity and their typicality.
- Transparency of information.
- Official signs of quality, brands.
- The price.

Of course, the importance given to these quality criteria has evolved and continues to evolve over time.

Moreover, the concept of quality has been the subject of several research, and this has led to its multidimensionality. Authors like Zeithaml, Berry, and Parasuraman (1993), had developed the SERVQUAL model which measures the perception of the quality of service of consumers. However, this scale is used only for services. On the other hand, Aurier and Sirieix (2016) list five dimensions of the quality of a food product:

- **A taste/pleasure dimension:** this dimension is linked to the organoleptic qualities, flavor, and texture of food. It is fundamental for food products.
- **A health dimension:** this dimension is twofold. It corresponds to health (health/safety) and nutritional (health/fitness) qualities. Health quality refers to safety, the absence of danger. It is an implicit sub-dimension and a basic legal requirement expected of all consumers. Nutritional quality, on the other hand, is an active sub-dimension, a search for balance, to which consumers are sensitive in varying degrees.
- **A practical dimension:** this dimension corresponds to the functional qualities of the product. It covers services concerning the ease of transport and handling of products, space saving for storage, time saving during preparation, cooking, the possibility of dividing dishes, reusing packaging, etc.
- **A social and symbolic dimension:** this dimension informs us this dimension covers the subjective qualitative components. Food consumption is one of the means for an individual to position themselves socially, we easily verify its relevance through the themes of advertising food products, which often rely to the point of caricature on the need that individuals must situate themselves in relation to reference groups and seek their recognition.
- **An ethical or societal dimension:** some consumers are not only interested in the product but also in the upstream production process and downstream in the consequences of consumption. They do not only consider the effects of consumption on themselves but also on others (effects of production and consumption on the environment, future generations, etc.). This ethical dimension of quality brings together very diverse elements concerning the origin of products (fair trade products, local origin), the production

process (including the issue of animal welfare), the behavior of companies in terms of the environment and social ethics (CSR or Corporate Social Responsibility) or the future of products (waste, waste). It is an emerging dimension, whose importance is growing, but whose weight remains difficult to measure. Thus, fair trade, which notably guarantees decent remuneration for producers (see illustrations on the page of the color booklet) remains a niche market and we do not yet know if it will grow significantly.

I-3-2. The attributes of product quality

Consumers use intrinsic data to form their perceptions of a product based on quality attributes. Cox (1967) was among the first researchers to distinguish between quality data and attributes. For him, different data can alter perceptions of attributes, hence the interest in having a relationship between data on which an evaluation is based and an attribute on the product being evaluated. In the rules and sorting model, Cox explains that quality evaluation is based on perceptions of a product using quality attributes and not quality data. However, he does not clearly explain the criterion used to distinguish the two notions of attributes and quality data. It is with Allison and Uhl (1964), Copulsky and Morton (1977), Jun

and Jolibert (1983) that a differentiation between data and attributes was made based on information. There are thus three kinds of attributes:

- **Search or information attributes.** Verification for these attributes is done before purchase; this is the case, for example, of the nature of the ingredients making up a product.
- **Experience attributes.** For these attributes, such as taste or freshness, the consumption experience allows verification; these are attributes perceived by the consumer, who can verify for himself, for example, that a vegetable is fresh or that a yogurt is too sweet.
- **Trust attributes.** The presence or value of these attributes cannot be verified during the consumption experience. This is the case for the natural character of the product, production conditions respecting animal welfare or the environment... For these attributes, the consumer must trust extrinsic quality indicators: labels, brands, etc. The information processed is also considered as an indicator of the quality attribute of a product. This distinction is summarized in the table presented by Ophuis and Van Trijp (1995).

Table 2. Quality indicators and attributes.

Intrinsic quality indicators	Extrinsic quality indicators
Quality indicators Appearance Color Shape Size Structure etc.	Quality indicators Price Brand Country of origin Store Nutritional Information Manufacturing Information
Tangible quality attributes for which experience allows verification. Taste Freshness Convenience etc.	Intangible quality attributes related to beliefs for which experience does not allow verification. Health, natural character Sanitation/hygiene Exclusive/Rare Character Production condition

Source: Ophuis and Van Trijp (1995)

Anderson (1994) identifies in the economic approach three types of quality attributes: the attributes of expected quality which are of a nature that can be observed before the act of purchase, the attributes of experimental quality or experience which can only be revealed after the purchase and consumption of the product and the products of belief which persist even after the purchase and consumption. The marketing approach generally distinguishes between intrinsic attributes (appearance, shape, volume, etc.) and extrinsic ones (brand, place of purchase, price etc.).

II. Research methodology

To answer these questions, the methodology used is both a qualitative and qualitative approach. The qualitative approach is linked to the different stages that allowed us to construct the scale

for measuring the perceived quality of local rice. Indeed, a set of items was selected through literature, and these were supplemented by a semi-directive interview with some households. These items made it possible to develop a questionnaire administered to 225 households during the exploratory phase. Tools used in this study are SPSS and AMOS software for the two phases of the construction of the scale.

II-1. The exploratory phase

Its objective is to carry out exploratory factor analysis, which serves to reduce the initial variables into a small number of factors. These factors result from linear combinations of the initial variables, the coefficients of which are provided by the factorial weights. According to the value of these coefficients, it appears

that certain initial variables contribute more than others to the formulation of a particular axis.

Some of the variables have high factor loadings on one or more axes. To address this issue, rotation is strongly recommended. For this, some data must be metric and factorable. The Kaiser, Mayer, and Olkin (KMO) and Bartlett's Sphericity 2 tests allow us to verify the data's ability to be factored. These tests are meaningful for our scale.

The KMO index tests whether the correlations between statements are high enough to search for common dimensions. It indicates to what extent the set of variables retained is a coherent set and makes it possible to constitute one or more adequate measures of the variables.

A high KMO (close to 1) indicates that there is a statistically acceptable factor solution that represents the relationships between the variables. On the other hand, if the KMO index is less than 0.5, it means that its items do not share enough variance for the analysis to be adequate.

As for the Barlett test, it tests the null hypothesis of zero correlation and is rejected. The data are thus correlated and can therefore be factorized.

Finally, what should be remembered about the orthogonal factor analysis method is that it allows the researcher to determine the number of dimensions encompassed by the concepts studied. It has the advantage of emphasizing the correlations of the items with the axes they are made up of. This allows for ease of interpretation of the different factors.

Our research work for this stage will be precisely to identify or name these factors by examining the variables that compose them.

We thus carried out a principal component factor analysis with orthogonal rotation on all the items of the perceived quality-scale.

Therefore, we chose an orthogonal analysis to measure the contribution of each variable to the development of the measurement scale of our concept. The particularity of orthogonal analysis is that each factor provides unique information that it does not share with any other factor.

II-2. The confirmatory phase

The items retained from the exploratory phase were used to develop a new questionnaire. Data collection was carried out on a new sample of 258 households. They allowed for confirmatory analyses. For this step, the same analyses will be carried out. We repeated the varimax rotation factor analyses on all the items of the three measurement scales. After eliminating the items due to low commonality, we repeated the factor analyses with the remaining items, and we obtained scales composed of dimensions that are different from the first collection. These two phases characterizing the construction of the scales will allow us to know the determining factors of the quality of local rice.

III. Research results

To understand the determining factors of the quality of local rice, we will present the results relating to the construction of the scale for measuring the perceived quality of local rice. On the other hand, regarding the assessment of the perception of the image of local rice, a descriptive analysis of the quality items is sufficient.

III-1. Results of Exploratory Factor Analysis

The factor analysis of the concept of perceived quality allowed us to obtain the following indices mentioned in the table below.

Table 3. Exploratory factor analysis indices.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.721
Bartlett's Test of Sphericity	Approximate chi-square	223.192
	Ddl	10
	Bartlett Meaning	0.000

The KMO is greater than 0.5 (0.721) then factor analysis is possible, we will try to extract the dimensions where there is a combination of items or variables. The following table gives us the factor distribution of the perceived quality measurement scale.

Table 4. Components from exploratory factor analysis.

Components	Initial eigenvalues	% of variance explained	Cumulative variances
Component 1	2.356	47.119	47.119
Component 2	1.062	21.236	68.355
Component 3	0.554	.11083	79.438
Component 4	0.484	.10875	90.313

The results of our analysis reveal that two factors for the set have an eigenvalue greater than one (1), and these explain 68.355% of the total variance. If we limit ourselves to the statistical definition of variance, we can easily say that the two factors explain the scale because the dispersion around the model is low. The percentage of explained variance shows that the level presented by the

measurement scale is acceptable.

It should be noted that our scale has two (2) dimensions. In this case, we are obliged to verify the internal consistency by testing the reliability of each dimension individually. This can be done using Cronbach's alpha coefficient. Cronbach's alpha is a coefficient that varies between 0 and 1; it constitutes an index of

the "consistency" of the scale, that is, the degree to which all the items it includes measure the same thing. The closer the coefficient is to 1, the more reliable the dimension is.

When the statements that form a dimension are from the same theoretical domain, the scale has good internal consistency on this

dimension. Thus, from 0.5 to 0.6 can be considered satisfactory (Nunnally, 1978). If the coefficient does not reach this value, the researcher must remove from his scale the items that are poorly correlated with the others, and whose elimination would increase the value of the alpha.

Table 5. Exploratory measurement scale.

Components retained following exploratory factor analysis	Cronbach Alpha
Component 1 Local rice is clean (No foreign matter) The cooking time of local rice is short local rice retains the homogeneity and whiteness of the grains	0.657
Component 2 Local rice is very easy to digest local rice is better for my health	

III-2. Results of confirmatory factor analysis

The factor analysis of the concept of perceived quality allowed us to obtain the following indices mentioned in the table below.

Table 6. Conformatory factor analysis indices.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.40
Bartlett's Test of Sphericity	Approximate chi-square	380.336
	Ddl	3
	Bartlett Meaning	<0.001

The KMO index for perceived quality is 0.740, which is greater than 0.5, indicating that the quality of inter-item correlations is excellent and that it is possible to continue the factor analysis.

Table 7. Components from confirmatory factor analysis.

Components	Initial eigenvalues	% of variance explained	Cumulative variances
Component 1	2.214	73.80	73.80
Component 2	0.423	14.116	87.924
Component 3	0.362	12.076	100

By observing the eigenvalues and the cumulative percentage of variance, we notice that component 1 is superior to the others and explains 73.80% of the initial information. Thus, the confirmatory factor analysis results in a unidimensional scale. Once the dimensionality has been established, it is then necessary to determine the items that perfectly measure the factor. Thus, the following table lists all the items and their factorial weight.

Table 8. Reliability and Validity of the perceived quality construct.

Items	Cronbach's Alpha	Rho A	AVE
Rice is better for my health	0.815	0.958	0.888
The cooking time of local rice is short			
Local rice retains the homogeneity and whiteness of the grains			

The table above shows that out of the seven (7) items retained in the exploratory factor analysis; three items (3) were retained because their factor weight is higher than the threshold retained. The other two items were deleted due to the weakness of their factor weight; these are the items "*Local rice is very easy to digest*"; "*the cooking time of local rice is short*." Thus, at the end of this analysis, the perceived quality scale is unidimensional and includes three items as indicated in the following table.

Table 9. Final measurement scale of perceived quality.

Rice is better for my health
The cooking time of local rice is short
Local rice retains the homogeneity and whiteness of the grains

Confirmatory factor analysis shows that three essential criteria determine consumer choice. First, consumer choice is guided by health concerns, then cooking time, but also the appearance of local rice, i.e. the whiteness of the grains and its homogeneity.

- **Local rice is healthier**

Table 10. Descriptive analysis of the item relating to “local rice is better for health”

	Effective	Frequencies %	Cumulative frequencies%
Strongly agree	80	31	31
Rather agree	117	45.3	76.3
Indifferent	57	22.1	98.4
Rather disagree	3	1.2	99.6
Strongly Disagree	1	0.4	100
Total	258	100	

Analysis of this table shows that 76.3% of Senegalese people say that eating local rice is better for their health. Most households surveyed believe that eating local rice is better for their health.

- **The cooking time of local rice is short**

Table 11. Descriptive analysis of the item relating to “The cooking time”

	Effectif	Fréquences %	Fréquences cumulées%
Strongly agree	82	31.8	31.8
Rather agree	145	56.2	88
Indifferent	17	6.6	94.6
Rather disagree	11	4.3	98.9
Strongly Disagree	3	1.2	100
Total	258	100	

The results in Table 11 show that the households surveyed appreciate the cooking time. 88% of households consider the cooking time of local rice to be satisfactory. Thus, most of the households surveyed appreciate the cooking time of local rice.

- **Compared to the homogeneity and whiteness of local rice**

Table 12. Descriptive analysis of the item relating to “the homogeneity and whiteness of local rice”

	Effective	Frequencies %	Cumulative frequencies%
Strongly agree	101	39.1	39.1
Rather agree	140	54.3	93.4
Indifferent	10	3.9	97.3
Rather disagree	7	2.7	100
Strongly Disagree	0	0	100
Total	258		

The analysis of the table shows that 93.4% of households consider the whiteness of rice and the homogeneity of local rice to be satisfactory. This item is essential because it constitutes a factor that guides the choice of households. Practically all households surveyed appreciate the whiteness and homogeneity of local rice.

Conclusion

According to this study on the quality of local rice, it appears clear that three essential items guide the choice of consumers:

- Rice is better for my health
- The cooking time of local rice is short
- Local rice retains the homogeneity and whiteness of the grains

These three criteria are highly appreciated by Senegalese consumers through our descriptive analysis. Indeed, among the households surveyed, the majority judge that local rice is of good quality and very well appreciated by the Senegalese.

From a theoretical perspective, the study of the perceived quality of local rice contributes to theoretical reflection on the strategic value of local food products in the quest for food self-sufficiency. The context of local rice made it possible to test a model for measuring the perceived quality of food products. This study has enabled us to deepen our understanding of perceived quality by applying it to a basic food product, often less studied than services and non-food or luxury processed products. The other major contribution is the highlighting of the importance of extrinsic attributes (local origin, label, packaging, price, reputation) in addition to intrinsic attributes (taste, aroma, texture, whiteness of the grain).

Furthermore, the analysis of the perceived quality of local rice highlighted the cognitive and affective factors that guide the act of purchase. This article contributes to the literature by showing the role of social representations (imported rice vs. local rice) and cultural expectations in the construction of quality perception.

From a managerial perspective, for local rice to fully play its role in the food sovereignty policy, efforts must be made. These efforts can be grouped into two categories.

First, production-related efforts are needed, namely:

- Improving production and processing: public authorities must implement a policy aimed at strengthening the production and processing of local rice. To do this, producers must be supported by providing them with certified seeds that are better adapted to local climatic conditions to increase productivity. They must also focus on modernizing agricultural techniques by investing in land development, irrigation and the fight against parasites and other insects and by promoting product, technological and marketing innovation. Beyond improving productivity, efforts must be devoted to processing by developing efficient hulling and processing units and enhancing the value of rice by-products (rice bran, straw, etc.) for other uses.

Secondly, marketing efforts are necessary:

- Enhancing quality and competitiveness: producers must ensure good quality of local rice (calibration, sorting, taste, cleanliness, acceptable brokenness rate) and reduce quality gaps with imported rice to attract consumers. They must ensure compliance with hygiene and conservation standards. They must also take care with

the appearance of local rice, not only in terms of grain size but especially in terms of packaging and format to meet the needs of consumers who often buy in retail.

- Improving distribution and accessibility: Producers must establish efficient logistics for collection and distribution to ensure the presence of local rice in all markets at the national level. They must also ensure cost control in order to set affordable and stable prices to compete with imported rice. In addition, the merchandising of local rice must be improved, especially in supermarkets, to promote sales and reduce storage times.

- Perfecting marketing communication: Marketing communication must figure prominently among these efforts. Producers must communicate the health benefits of consuming local rice. The aim of this communication is to raise awareness among the population about the nutritional and economic benefits of local rice. It thus helps to develop a positive image of local rice, which has long been the victim of stereotypes.

Ultimately, the objective of this article was to determine through a study (exploratory and confirmatory) the determining factors of the quality of local rice and to show how Senegalese households appreciate this quality. However, this study has some limitations, notably the single-product nature of the study. The other limitation of this research is the low level of education for most of the individuals who make up our sample. Indeed, this low level of education can hinder the proper understanding of the questionnaire despite the oral translation of the questionnaires into the mother tongue (Wolof or Serer) of the respondents. This study therefore leaves the way open to a series of extensions. On the one hand, it seems interesting to explore the perception of the perceived quality of food products in other countries in order to compare the different points of view on this subject. On the other hand, research could be considered to understand the relationship between perceived quality and purchase intention.

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