



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



SENEGAL Naatal Mbay

Cereal Value Chains

QUALITY MANAGEMENT

Cereal quality starts with the raw material and therefore with the producer. The adoption of good agricultural practices and observance of farm-gate quality standards by cereal farmers facilitate access to credit, promotes price stabilization, enhances processor competitiveness, and facilitates penetration into urban markets.

2019

INTRODUCTION

Without compliance to agreed upon quality specifications, the relationship between value chain stakeholders cannot develop, particularly if the traded product is of low intrinsic value and attracts additional costs at every stage. Feed the Future, in keeping with its mission to promote inclusive value chains, adopted an inclusive approach that supports both producer organizations and their clients so that they take charge of the application of a pragmatic and effective quality management framework. This supposes a system that is accepted and understood by all, and capable that meets delivering a uniform raw material of the standard expected by processors and consumers.



BACKGROUND

Traditionally, cereal quality control has been based on empirical assessments conducted by buyers at weekly markets or inventory controls applied by government authorities to imported products. Sometimes the buyer may conduct a visual inspection of a single handful of the product to determine the quality. Without quantitative and documented evidence as back-up, producers cannot easily defend upstream, the quality of their product.

At the processing unit level, the heterogeneous nature of smallholder production made it difficult to manage quality; grains were sorted upon arrival, cleaned at different stages of the process, and verified at the end. These actions could not, however, overcome the lack of homogeneity of the raw material or contamination.

Exchange Rate : Financial data originally presented in this note has been converted at the standard project exchange rate of US\$ 1.00 = 500 FCFA.

This situation limited the performance and competitiveness of Senegalese cereals, and resulted in low producer prices, low productivity at processing plants, and marketing difficulties due to the variable quality of the product and strong competition from imports of a more uniform quality.

In the rice sector, attempts were made to create raw material buying centers, combined with an independent control body, to correct the situation, but this centralized system did not get the buy-in of producers and industrial processors.

PHOTO. PAGE 1

Yelly Diagne, manager of the DIAWEL rice sales outlet, located in the populous Grand Dakar borough of the capital.

PHOTO. PAGE 2

Five years ago, there was virtually no Senegalese rice in Dakar as it was deemed to be of poor quality. Today, Senegalese brands can regularly be found in small stores and supermarkets.

TECHNOLOGY DESCRIPTION

In the context of value chains, quality control is a “business to business” (B2B) process that allows contracting parties to agree on quality criteria and measurement methods. These criteria are established by mutual agreement between processors and producers and are incorporated into the contract.

This B2B quality system is defined according to the following components:

Compliance Parameters

The adoption of standards by all stakeholders requires that they be included in the development of those standards. The stakeholders involved in establishing and implementing quality controls are producer organizations, processors, wholesalers, customers, facilitators, and technical partners. The World Food Program (WFP) or certain ISO standards and the Codex Alimentarius are a source of recognized specifications that can provide an initial framework to the working group.

Compliance Practices

The system identifies good practices (before, during, and post-harvest) that should be followed to achieve the quality standards established between the parties. Thus, for producers, complying with these criteria means the adoption of certified seeds (for homogeneity), adherence to optimal timing of the harvest (maturity, moisture content, and yield), and protecting the harvested crops (use of canvas ground coverings, drying platforms) to reduce contamination.

Sampling Method

At harvest time, batches of grain are sampled using established rules (specific to rice, millet, or maize quality codes). The sampling method provides a simple method for determining the number of test samples needed to arrive at a statistically significant result. It also indicates simple techniques to guarantee the randomness of sample selection.

Measurement

Specific but inexpensive equipment is used in conducting quality control procedures: a probe, moisture meter, scale, rocker, mini-dehuller, basins, buckets, etc.

Storage

The storage warehouse must meet certain standards for ventilation and availability of pallets for arranging the grain in lots.

Traceability

Finally, traceability is established using a quality control form that identifies the producer and documents test results, including any observations made. If there are non-compliant lots, the cause can be traced using these forms.

Disputes

This system requires the “redundant” application of controls. Producer networks test their members’ products before storage or delivery to the buyer. The buyer will also conduct the same tests before accepting the lots. In the event of a dispute, joint testing by the parties facilitates a final decision – whether to accept, reject, or discount the lot. The rules of the game are clear and arbitration procedures are more transparent.

PRODUCER AND PROCESSOR AT THE HEART OF A “B2B” PROCESS TO ENSURE CEREAL QUALITY



RESULTING CHANGES



The B2B approach popularized by Feed the Future for quality control has been applied by producer organizations and processing companies in the rice, maize, and millet value chains in the irrigated areas of the Senegal River Valley and in rainfed agriculture areas in southern Saloum and the Casamance. 75,763 people, including 27,665 women, have used these standards in the context of business contracts. The results obtained since 2013 to present show the considerable impact that the quality approach has had on productivity improvements of cereal value chains:

Adoption of Certified Seed

The adoption rate of certified seed by producers participating in contractual programs following quality standards has increased to 100 percent. The use of certified seed has streamlined the range of seed varieties in order to meet processing requirements and the demands of the consumer market. For rice, the Sahel 108 variety is used by 80 percent of producers, while Sahel 177 has become the

leading aromatic variety. For millet, the Sunna 3 variety is the seed used most for commercial programs, while for maize the leading varieties are Early Thai and Obatampa.

Good Agricultural Practices

Quality control affects the adoption of good practices in the field: 80 percent of producers participating in Feed the Future programs master techniques such as weed control and final drainage which have an impact on the moisture content of rice. Farmers appreciate that using certified seeds is a means of combating weeds.

Use of Good Storage Methods

Crop storage methods are improving. Techniques for conditioning, filling, and storing grain bags are mastered and applied systematically by producers, whereby the quality of the final product is improved.

TESTIMONY

A Lower Level of Post-Harvest Losses

The harvest is timed to optimize the moisture content and maximize the proportion of mature grains when the harvest takes place in one operation. Compliance with specifications encourages the use of mechanized harvesting and threshing techniques that reduces losses.

A Win-Win Relationship Between Producers and Processors

Producers complying with quality standards notice an increase in bargaining power, and higher and more stable prices from the start of the agricultural season, as a result of homogenous production that meets the standards (moisture content, cleanliness, packaging, and weight) of industrial buyers. Mills offer a premium price for quality because of the better yield they obtain during processing. For rice, the rate of return on husked paddy rice increased from 58 percent to 65 percent between 2012 and 2018, contributing significantly to the competitiveness of domestic rice production.

Rice Trading Emerges in the Senegal River Valley

Better quality control by producer network groups and processors led the Senegal National Agricultural Bank (CNCAS) and other banks to recognize that unprocessed cereals have a collateral value. Batches put together for in-kind loan reimbursement by producer networks are marketed directly to processing companies.

The Emergence of Brands

The creation of credible brands for urban distribution was made possible because of the consistent application of quality standards. The number of brands increased between 2013 (beginning of the presence of brands at the International Fair of Agriculture and Animal Resources, or FIARA) and 2018. Today, more than 50 brands compete with imports in terms of quality.



PIERRE NDIAYE,
Founder and current General
Manager of Mamelles Jaboot

Bringing producers closer to urban consumers: the success of the business relationship between Mamelles Jaboot and the Wack Ngouna producer network

The objective of Mamelles Jaboot is to support local consumption by promoting local products.

We launched the marketing of thiakry in 2003, at a time when a qualified producer network for access to cereals did not exist. It was impossible to have access to quality millet all year round.

Today, the situation has changed. For example, in 2018, the amount of millet bought under contract rose to 1,000 tons, representing a value of US\$ 430,000 (215 million CFA francs).

This evolution took place gradually with the support of the Naatal Mbay project. The reinforcement of the agricultural and management capacities of the producers allowed us processors to have access to quality millet. The forging of these relationships and the agreements on standards and the quality approval process have reduced tensions between producers and processors. Today, the relationships that I have with farmers from the communes of Mabo, Keur Maba Diakhou, and Wack Ngouna are solid and sustainable. These producers are satisfied and now welcome me as one of them. Now that access to large volumes of quality cereals is assured, it is necessary to increase our processing capacities. To succeed in doing this, we are aiming at establishing an alliance with the Wack Ngouna network and CNCAS.

FACILITATION APPROACH

The facilitation approach implemented by Feed the Future Naatal Mbay considers that quality control by smallholder farmers is a priority challenge for building inclusive value chains. Consequently, it is key that all stakeholders, especially producers at the beginning of the value chain, take ownership of the quality control concepts. This facilitation approach relies on a participatory process to define a normative framework, as well as the integration of quality modules into farmer training programs on good agricultural practices.

The implementation of these B2B quality management frameworks in the cereals sector involves six key steps:

1. Conceptualization

The conceptualization of an implementation framework for cereal quality control requires, as a first step, a diagnosis of the initial situation that identifies the challenges associated with poor quality within the value chain, targets the critical control points and deficiencies observed, identifies stakeholders with a direct interest in the value chain, and outlines a strategy to fill the gaps in the quality system by drawing on normative frameworks for similar production.

2. Standardization

Secondly, direct stakeholders such as producer organizations, wholesalers, processors, and banks, are brought together in a consultative process to develop a consensus on product quality standards, with the support of facilitators.

3. Measurement rules

Another series of stakeholder meetings is needed with technical support in order to define verification procedures, sampling and testing methodologies, the choice of appropriate control equipment, and the design of the traceability documentation system.

4. Training and Implementation

Promotional activities, producer-level training, and the distribution of measuring equipment starter kits are conducted with producer organizations, processors, and facilitators, to test the standards and procedures and prepare for deployment in the field.

5. Documentation and Follow-Up

Documentation or traceability of activities through the implementation of databases is an essential part of the process involving producers, processors, and clients. It makes it possible to monitor the performance of various stakeholders and to evaluate the relevance of the system, as well as the continuous application of the standards.

6. Evaluation

At the end of each season, the value chain stakeholders carry out a joint assessment of the quality control practices. This activity brings together technical partners, producer organizations, traders, processors, and facilitators to improve the system and to make it replicable.

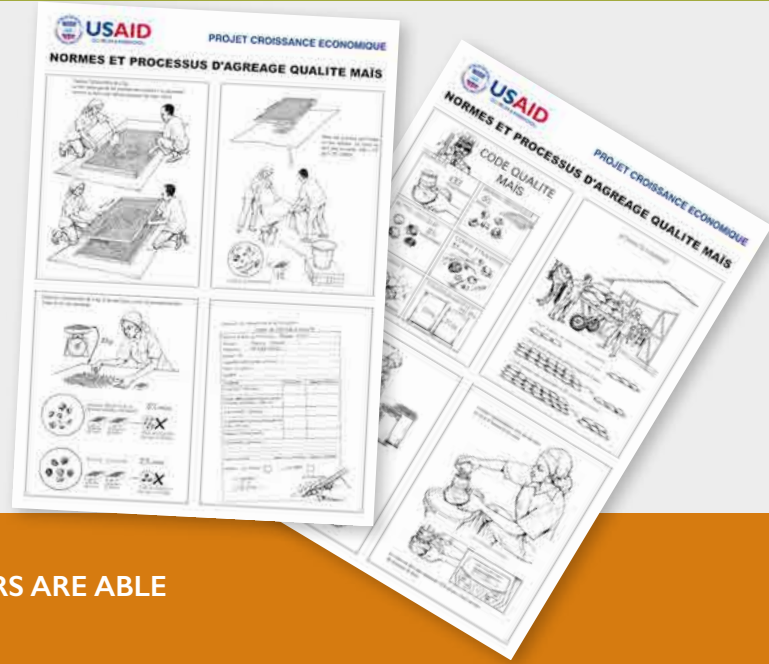
BRANDING: COMMUNICATING QUALITY TO THE MARKET

The creation of a commercial identity, or branding, is the culmination of the quality approach. High performing entities receive support to develop distinctive packaging that draws attention to their commercial brand in the market. Branding applies to both raw and processed cereals whose quality is improved by the production of quality raw material. Thus, apart from the use of distinctive labeling for packaging, support is provided to some processors for the promotion of their products through high-visibility events such as the “Rice Village of Senegal” exhibit at the International Fair for Agriculture and Animal Resources (FIARA). Held annually in Dakar, the exhibit has highlighted the significant increase in locally produced quality rice brands.

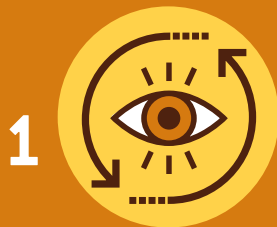
DEVELOPMENT OF STANDARDS AND QUALITY CONTROL PROCESSES

The standards defined by the processors and producers can be difficult to apply if they are not well understood. To facilitate this process, Feed the Future has simplified the specifications, making them more accessible.

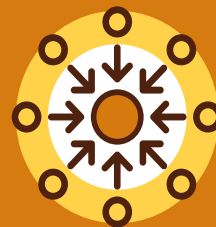
Simplifying them involved the design of practical informational sheets so that the adopted Quality Code Standards can be easily visualized, as well as providing the steps to be undertaken to evaluate and validate product conformity to quality standards.



SIMPLIFYING SPECIFICATIONS SO THAT PRODUCERS ARE ABLE TO ADOPT THE STANDARDS



1 Conceptualization



2 Standardization



4 Training and Implementation



3 Measurement Rules



5 Documentation and Follow-Up



6 Evaluation



PARTNERSHIPS AND SYNERGIES

The introduction of the B2B approach is the result of cooperation between USAID's Feed the Future program and value chain stakeholders, particularly producers and industry leaders. It has capitalized on the technical achievements in terms of standard definition and measurement techniques the National Agency for the Development and Use of the Lands of the Senegal River Delta (SAED) through its Project for Improving the Productivity of Rice in the Hydro-agricultural areas of the Senegal River Valley (PAPRIZ), a project of the Japanese International Cooperation Agency (JICA) and the Project for Promoting the Rice Partnership in the Senegal River Valley (3PRD) funded by the French Development Agency (AFD), as well as inputs from institutional buyers such as the World Food Program (WFP).



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THE FIARA PARTNERSHIP

Since 2012, Feed the Future has partnered with the organizing committee of the International Fair for Agriculture and Animal Resources (FIARA) to promote cereal production. With the upsurge in local rice, the FIARA has been a powerful tool for communicating to the general public in Dakar that things have changed. From one year to another, Naatal Mbay called on the increasing number of local businesses to come and exhibit their brands in Dakar. The 2018 local rice exhibit was organized by the National Rice Producers Association (ANR), and featured the products of 20 businesses, as well as a stand that highlighted the emerging rice processors in Southern Senegal.

The RICE OF SENEGAL mega-stand at FIARA, supported by Feed the Future, located for the past four years in the parking area at the entrance to the fair, attracts both business people and the general public who take advantage of it to make purchases or sign contracts.

ACHIEVEMENTS

The quality approach has had a positive impact on most stakeholders who have adopted it or have benefited indirectly from it. The most significant aspect is how this practice has been assimilated, appropriated, and replicated at different scales:

A Constructive Dynamic Constructive Dynamic

The Business to Business (B2B) approach promoted by Feed the Future Naatal Mbay, has created a constructive dynamic between the various value chain stakeholders, establishing a win-win partnership, based on trust. The standards introduced for cereals are now an integral part of the contractual framework between producers and manufacturers for irrigated rice, maize, and millet.

Adoption of a Consultative BtoB Approach

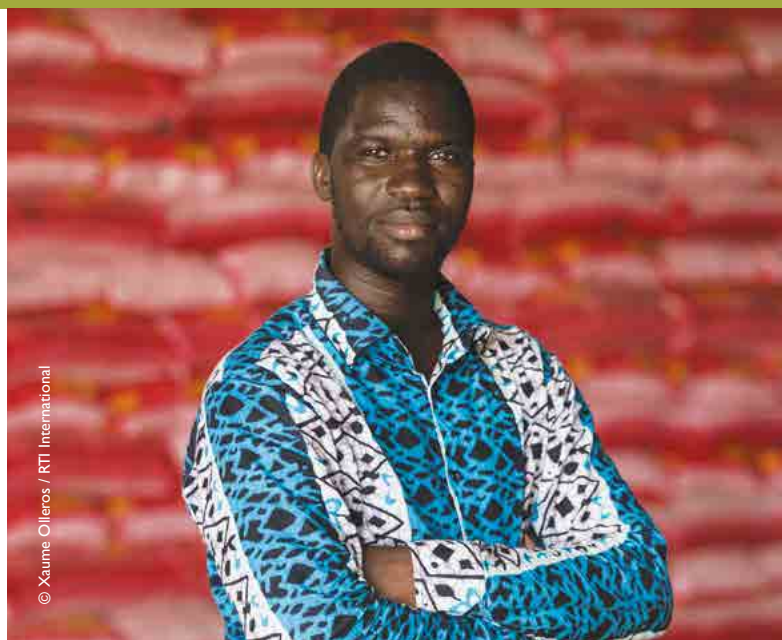
The use of consultative workshops bringing direct value chain stakeholders to the table to discuss standards, measurement methodologies, necessary equipment, and procedures is a novel approach. Consultative workshops have shown their value and demonstrated the importance of including all stakeholders in the value chain from the start, especially producers, in decision-making. Early engagement helps to raise their awareness and, above all, to empower them.

The Pro-Active Role of Producers

The concept of quality control has been conveyed to a significant number of producers who are able to adjust their practices to comply with buyer specifications. These producers are no longer passive stakeholders subject to rules they cannot master and who are controlled by buyers.

Sustainability of the System

The training system in the field, working with leading producers, ensures the transmission of achievements within the community, beyond the activities of the program.



THE “ROYAL RICE” OF ROSSO, SENEGAL

Alioune Mbodj, 35 years old, is the Administrative and Financial Director of the “Mbodj et Frères” economic interest group (GIE), a family business managed by his brother who began his milling activities by acquiring a traditional husking

machine in 2006 and pre-financing smallholder producers on 30 hectares. “Today, the development of white rice sales, as well as its by-products, has allowed us to invest, since 2015, in a rice mill with a capacity of 60 tons/day, 5 tractors, and 4 combine harvesters (harvester-threshers),” he said. Beginning as a small-scale operation, the business now manages almost 100 hectares, including 70 hectares that are leased out. “Our main source of supply remains smallholder farmers and for the hot/off-season crop in 2018, we had agreements with producers over an area of 3,177 hectares.

The brand “Riz Royal” (Royal Rice), is the fruit of our collaboration with Feed the Future, followed by some improvements along the way. “Riz Royal” is sold today in Touba, Thiès, and Dakar, but the Mbodj & Frères GIE also takes special orders for the national Food Security Commission (CSA) and during religious events. “In 2018, we sold almost 7,000 tons of white rice! The demand is increasing from one year to the next and exceeds our capacity. We have just invested in a highly efficient laser sorting machine in order to guarantee a high quality product. We are also thinking about introducing nutrition-fortified rice. In a few years, we will even be able to export Riz Royal!”

CHALLENGES

Overcoming Resistance to Changes in Standards

The notion of quality approval is a relatively recent idea that will require a sustained effort to raise awareness among smallholder producers for some time to come. To date, the transformation has been significant. The widespread use of specifications has raised the bar for producers because industrial mills, for which the quality of the raw material has become an essential condition of profitability, will tolerate less and less deviation from the prevailing quality norms. Low quality paddy now runs the risk of being rejected by the buyer for whom discounts are no longer a viable practice. This change in standards may become a source of misunderstanding and conflict. Older producers are difficult to train as they rely on their experiences and have difficulty adapting to new practices founded on scientific measuring criteria.

Respecting the Distribution of Tasks

In some cases, respecting the distribution of production control tasks (pre-harvest, in the field, and harvest) is a challenge. Buyers find that quality assurance requires transparent agronomic control at various stages or even independent compliance verification.

Always Maintaining the Same Rigor

One of the challenges will be to maintain the rigor of the approval practices as the value chains experience sustained growth. Under these conditions, an increase in factory demand and scarcity of the product can lead to speculation which has a negative effect on the real valuation of the quality of the lots.



SAMPLING THE RAW MATERIAL – A KEY STEP IN THE PROCESSING PROCESS

Abdou Katy Mbodji, the President of the Darou Mbodjène Economic Interest Group (GIE) in Ndiatene takes a quality control sample of paddy rice, prior to processing, using a probe produced locally. Quality control of paddy rice stocks is no longer restricted to large industrial concerns; it is gradually being adopted by small processing plants as well.

OUTLOOK

An Evolving System

The quality approach has brought positive changes in the relationship between producers and processors. This approach will continue to evolve over time with the increase in cereal sold under contracts and the development of agro-food processing targeting urban markets.

Towards the Implementation of a Harmonized National Framework

Such a large-scale transition suggests the establishment of a national harmonized quality control framework, which will involve support for raising the storage standards of raw materials. Eventually, the introduction of new systems such as warehouse receipts will influence the quality standards framework. The fact that quality certificates from this system will underpin financial transactions will once again raise the bar. These systems will be based on even more stringent controls than the current

B2B framework and will need to be accompanied by traceable inventory quality documentation, managed by third-party holding agencies, and bank-mandated supervisors.

Integration of New Rules

With the development of urban markets, and even sub-regional markets, the quality criteria must address biosecurity, hygiene, and environmental compliance rules. In fact, populations have the right to consume healthy agricultural foodstuffs that do not endanger their health, that are produced, processed, packaged according to approved and replicable processes, and that can be audited. Processing and distribution companies will bear the responsibility for meeting these requirements. They will need to adapt their practices accordingly, and this will have the effect of modifying the specifications of their purchases from producers.



VALLEY RICE AND E-COMMERCE: THE SAKANAL PLATFORM

The supermarket SAKANAL Magasins located in the SODIDA industrial area in Dakar distributes Karolina rice, produced in a modern processing plant in the Senegal River Valley. The entire quantity processed in the plant located in Ndiagambal in the administrative Department of Saint-Louis is transported directly to the Dakar warehouses. The product has succeeded in penetrating the urban markets because of its superior quality. Many of the purchases are made online or with a prepaid card. A home delivery service makes it possible to purchase the product which is selling like hot cakes.



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TO LEARN MORE

- Le chemin du bon riz, USAID, Sénégal, 2015
- Code qualité riz illustré pour le Sénégal, USAID, Sénégal, 2015
- Code qualité mil illustré pour le Sénégal, USAID, Sénégal, 2015
- Normes et processus d'agrèage qualité maïs au Sénégal, USAID, Sénégal, 2015
- Quality control standards for cereal value chains consensus-based industry standards to increase small farmer access to grain markets, USAID, 2015

This capitalization note and the publications mentioned are available at the following address:

www.usaid.gov/senegal

www.ipar.sn/chaines-de-valeur-agricoles-au-senegal

PHOTO

The final outcome of the efforts of Senegal's rice value chain: the delicious Thieboudienne (traditional Senegalese dish).



The Naatal Mbay project (Flourishing agriculture in Wolof), spanning four years (2015-2019), invested nearly US\$ 24 million (12 billion CFA francs) to support the rice, maize, and millet cereal value chains. It has created business opportunities for inclusive growth and development of the agricultural sector in the Delta and the Senegal River Valley, in the southern portion of the central peanut basin, and in the southern regions of Ziguinchor, Sédhiou, and Kolda. Naatal Mbay was implemented in the context of Feed the Future, an initiative launched by the Government of the United States of America in 2011 to combat hunger and food insecurity in the world.

For more information :
www.feedthefuture.gov

USAID is the United States Agency for International Development, one of the most active agencies in the world in this field. In Senegal, USAID is working in close collaboration with the Government of Senegal in the fields of health, economic growth, agriculture, education, and good governance.

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