Market Study and Stakeholder Mapping of the Wheat Value Chain in Senegal

Contents

List of acronyms

ADEPME	Agency for the Development of Small and Medium-Sized Enterprises
ANCAR	National Agency for Agricultural and Rural Advisory
BIS	Irrigated Wheat Senegal
DER/FJ	Delegation for Rapid Entrepreneurship for Women and Youth
DRDR	Regional Directorate for Rural Development
EUCORD	European Cooperative for Rural Development
FAO	Food and Agriculture Organization of the United Nations
GIE	Economic Interest Grouping
GMD	Grand Moulins de Dakar
ISRA	Senegalese Institute of Agricultural Research
ETFs	National Federation of Bakers of Senegal
MAERSA	Ministry of Agriculture, Rural Equipment and Food Sovereignty
NGO	Non-Governmental Organization
PAF	Women's Empowerment Program
PNB	National Wheat Program
UNDP	United Nations Development Programme
USDA	US Department of Agriculture (USDA)
RBS	Bakers of Senegal
SAED	Société d'Aménagement et d'Exploitation des terres du Delta du fleuve Sénégal

SUMMARY

Wheat, a cereal grown for its grain, is a staple food in several regions of the world. According to the FAO, **world wheat production was around 777 million tons** in 2021, or nearly 28% of total cereal production, well ahead of rice.

In Africa, it has been observed over the years that the possibility for extending wheat cultivation on the African continent is great, mainly because of the **discovery of new, high yielding varieties**, which according to preliminary studies yield an average of 2 to 3 tons but with peaks of 4 to 5 tons. In doing so, despite constraints due to climate and many other factors, it was noted that the development of wheat cultivation is indeed possible in the Western Sahel.

In Senegal, wheat cultivation is not very old, due to climatic conditions that are not very favorable. However, during the 1970s, initiatives were undertaken to introduce wheat cultivation, with the aim of diversifying agricultural production and reducing dependence on imports of this cereal.

According to the Food and Agriculture Organization of the United Nations (FAO), **Senegal imported 897,798 tons of wheat in 2023, for a value of USD 308,459,000** or the equivalent of 186,910,000,000 CFA francs. According to the National Federation of Bakers of Senegal, Senegalese wheat imports are estimated at 840,000 tons in 2024.

In Senegal, wheat cultivation is important in the use of the products (i) for human consumption, (ii) animal feed and (iii) industrial uses. To make the most of it and place Senegal on the trajectory of **food self-sufficiency**, **a National Wheat Program**, aimed at covering half of the country's needs by 2035, is being implemented by the Government over the period 2022-2025.

EUCORD proposes to support the emergence of the **irrigated wheat value chain in the Senegal River Valley** through an intervention that will improve the incomes of at least 2,000 smallholder farmers (40% of whom are women) by 20% and the incomes of 1,000 members of processors' groups (95% women) by 10% over 3 years. This approach is part of the government's objective to reduce Senegalese wheat imports by at least 40% over the period 2024-2028.

Following the example of Senegal, many **West African countries**, including Burkina Faso, Mali, Niger and Nigeria, have introduced wheat cultivation for various reasons, the two main ones being to **reduce dependence on imports and to ensure the food security of the population.** Indeed, in all these countries, the consumption of wheat products, including bread, pasta and wheat semolina, is at high levels, giving rise to colossal imports.

From these examples, the lesson to be learned is that wheat cultivation is developing in the West African sub-region and that **Senegal has everything to gain by developing its production potential** based on the availability of land and water, all along the Senegal River Valley, on the technical expertise available within ISRA, on the support of partners such as EUCORD, on committed actors, grouped around the Wheat Producers' Association and the private operator Sunu Blé.

The Senegalese wheat market is mainly made up of **imported wheat.** Annual per capita wheat consumption has increased from 27 kilograms in 2002 to 42 kilograms in 2020, an increase of 56% in the space of 18 years, clearly showing **the evolution of dietary habits** in favor of wheat products and thus increasing imports.

On the other hand, Senegalese wheat production, which is off to a timid start, could experience a considerable development thanks to **the organization and development of the seed sector**. Indeed, with the organization of actors grouped together in an Association of wheat producers around a private operator called Sunu Blé, on the one hand, the support of ISRA and EUCORD with its Senegal Irrigated Wheat Program, on the other hand, the wheat seed sector could increase from 40 tons, in 2023-2024, to 400 tons, in 2024-2025.

In conclusion, although local wheat production in Senegal is in its infancy, ongoing initiatives, particularly in the Saint-Louis region, show **promising potential**. With adequate support and targeted investments, Senegal could gradually reduce its dependence on imports and develop a sustainable Senegalese wheat sector.

In Senegal, wheat processing actors are organized into groups, associations and industrial or flour milling companies. At the lowest level are **women groups, actors in artisanal processing.** Often organized as Economic Interest Groupings (EIGs), women groups play a key role in the wheat value chain.

Industrial units place on the Senegalese market various products derived from wheat, including wheat flour, used by bakeries and pastry shops, durum wheat semolina to produce pasta and wheat bran for animal feed. In 2023, of the 897,798 tons of imported wheat, wheat flour constitutes 80%, i.e. 718,238 tons, wheat bran, 20%.

The other actors in the processing sector are the bakers, grouped within two organizations called the National Federation of Bakers of Senegal (FNBS), and the Regroupement des Boulangers du Sénégal (RBS) is the 2nd organization that brings together some of the bakers established in the country.

The bread market: in Senegal, an average of **12 million baguettes are consumed every day,** made from imported soft wheat flour. On average, each Senegalese among the country's 18 million inhabitants consumes the equivalent of 237 baguettes per year.

The biscuit market: the biscuit market in Senegal is growing with a rate linked, above all, to demographics, and which is between 4 and 6%. The biggest constraint observed in biscuit production is that of inputs, particularly soft wheat flour, which is the basic input, representing 80% of the product and granulated white sugar.

The pasta market: in Senegal, the market for short pasta, particularly for shells, vermicelli, twists and “mohamsa”, is buoyant. Conversely, spaghetti is not, due to the uncontrolled importation of the product by actors in the informal sector with whom it is difficult to compete.

The wheat flour market: produced from the 897,798 tons of wheat imported from the above-mentioned countries in 2023, **the Senegalese wheat flour market is about 718,238 tons shared by the seven flour mills listed, of which the five produce 98%, divided between bakery (90%), biscuit factory (5%). The remaining 5% is used by households.** However, in Senegal, there are two (2) main categories of wheat flour, namely baker's flour and pastry flour and a sub-category of flour called "compound flour", intended for the manufacture of bouillon cubes that incorporate 35% flour in its composition.

The animal feed market: in addition to the wheat flour market, there is the wheat bran market in Senegal, a by-product used in the production of animal feed, mainly for livestock and poultry. The

Senegalese animal feed market is estimated at 150,000 tons for livestock feed and 100,000 tons for poultry feed, for a total of 250,000 tons.

Faced with this situation of dependence on imports of wheat and its by-products, it is necessary **to think about bold solutions that can allow the emergence in Senegal of a competitive wheat sector** that will contribute to the achievement of the objective of food self-sufficieny assigned to the National Wheat Program implemented from the Senegal River Valley.

Today, the economic situation in Senegal requires the implementation of a program to reduce "dependence on the outside world for the supply of wheat", insofar as the global context is favorable, plant material is increasingly available, climatic conditions offer possibilities and land that can be developed for wheat cultivation exists. In addition, **the political will** is also displayed, since food self-sufficiency is at the center of the Senegal Vision 2050 Agenda.

I. INTRODUCTION

1.1 History of production and research and development of the wheat sector in Senegal

Wheat, a cereal grown for its grain, is a staple food in many parts of the world. According to the FAO, world wheat production was around 777 million tons in 2021, or nearly 28% of total cereal production, well ahead of rice.

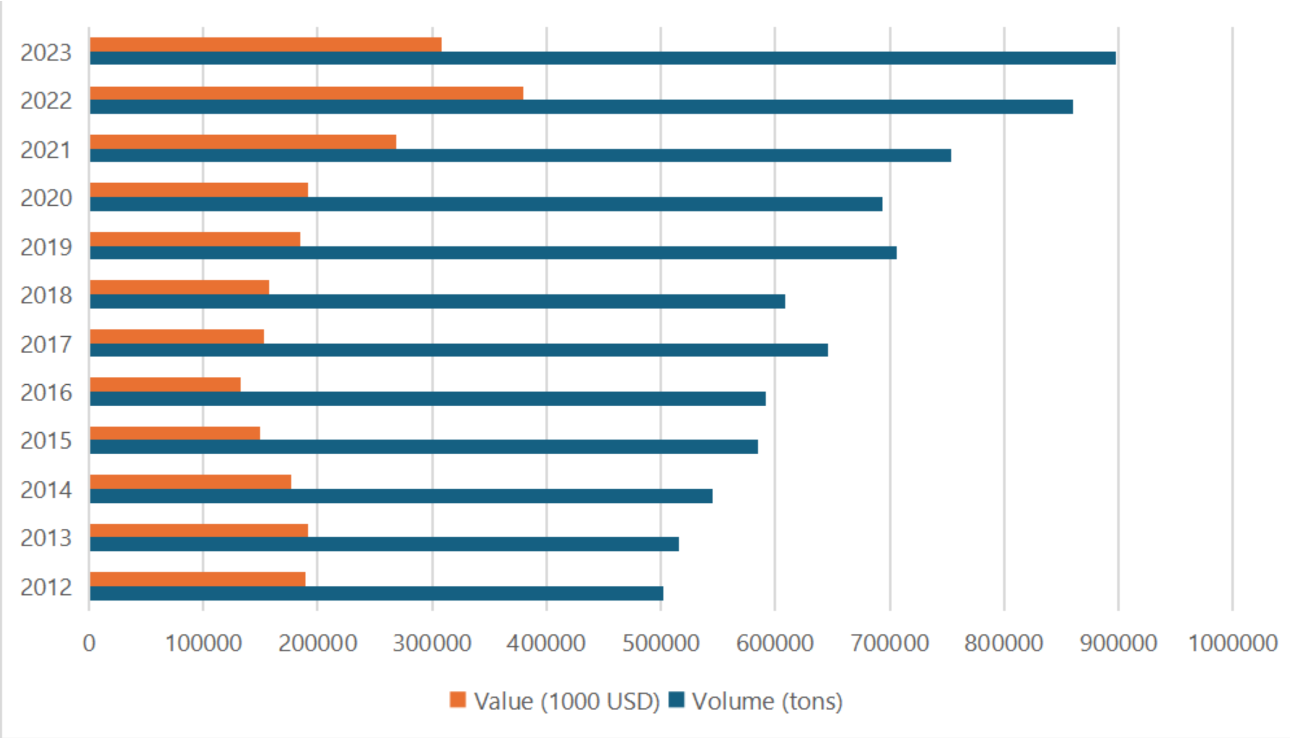
In Africa, the global crisis in all economic sectors has been aggravated, particularly in the Sahel, by two short-term scourges, namely drought and famine, since 1973. Wheat was introduced to East Africa in the twentieth century by missionaries. However, its production remained very low. In 1975, it was only 8.15 million tons, which represented 2.2% of world production. On the other hand, needs have increased significantly, which further justifies the massive imports of wheat, due to the consumption of bread and wheat products, especially in the western Sahel.

Over the years, it has been observed that the possibilities for extending wheat cultivation on the African continent are great, mainly due to the discovery of new, high yielding varieties, with an average yield of 2 and 3 tons and peaks of 4 to 5 tons. Despite constraints due to climate and other factors, it was noted that the development of wheat cultivation is indeed possible in the Western Sahel.

In Senegal, wheat cultivation is not very old, due to climatic conditions that are not very favorable. However, during the 1970s, wheat cultivation was introduced with the aim of diversifying agricultural production and reducing dependence on imports. It should be noted that in the 70s, wheat cultivation was not very successful in Senegal, due to the economic policies of the time which did not favor its development. Instead, Senegal continued to rely heavily on wheat imports to meet domestic demand for wheat based products.

According to the Food and Agriculture Organization of the United Nations (FAO), Senegal imported 897,798 tons of wheat in 2023, for a value of USD 308,459,000 or the equivalent of 186,910,000,000 CFA francs. According to the National Federation of Bakers of Senegal, Senegalese wheat imports are estimated at 840,000 tons in 2024.

Volume and values of Senegalese wheat imports from 2012 to 2023



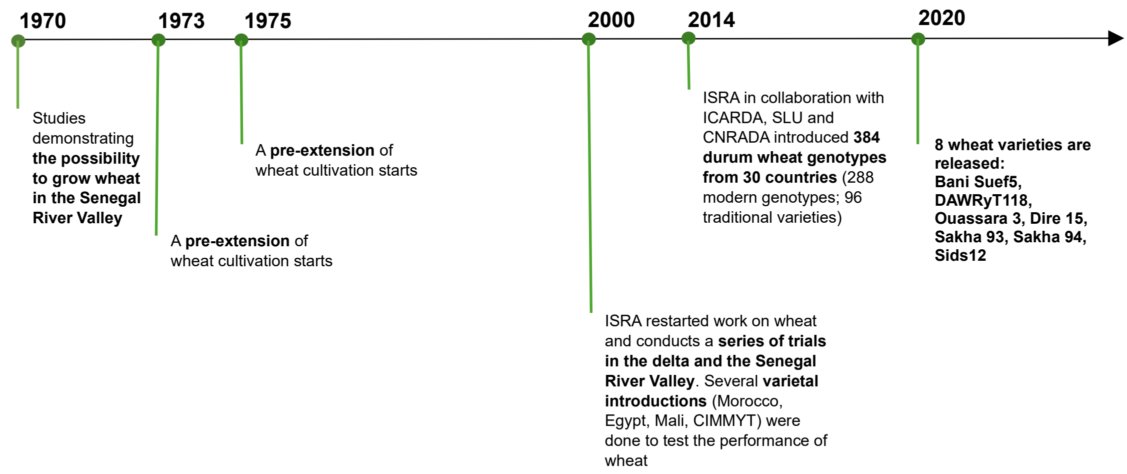
Source: FAO

Senegal's main wheat suppliers are France (36.9 %), Russia (36.3 %), the Republic of Lithuania (16.3 %), Poland (6.4%) and the Republic of Latvia (3.0 %).

Already with the drop in yields due to climate change and the reduction in the use of chemical fertilizers and pesticides desired by the population, especially in Europe, the price of wheat has risen considerably and the countries south of the Sahara, including Senegal, are now facing an increasingly heavy import bill leading to pressure on the trade balance, which is already heavily in deficit.

As a reminder, Senegal had already undertaken, during the 70s, studies aimed at introducing wheat cultivation to meet the demand for products derived from wheat flour, on the one hand, and to reduce its imports of wheat, the second most consumed cereal (after rice), on the other hand.

Evolution of wheat research in Senegal



Source: ISRA Publication (BAME Tuesday)

Thus, after a suspension of the research on wheat cultivation dictated by an unfavorable economic situation, work resumed in 2005 with trials in the Senegal River Delta and Valley. This was continued in 2014 as part of a project to strengthen seed production capacity to deal with climate change. Then a National Wheat Program, initiated with the implementation of the 2023-2024 Agricultural Program, was started with a view to:

- Reduce Senegal's vulnerability to external shocks, in particular, the effects of the COVID-19 pandemic and the conflict between Russia and Ukraine, through a significant reduction in imports.
- Import 500 tons of R2 seeds from Egypt and 80 tons of R1 seeds from Mali, to sow 3625 hectares whose producers were identified, in October 2024, by a joint MAERSA-ISRA mission, in October 2024.

1.2 Actors involved in the development of the wheat sector in Senegal

In Senegal, wheat cultivation is important in the use of the product (i) for human consumption, (ii) animal feed and (iii) industrial uses. To get the most out of it and place Senegal on the trajectory of food self-sufficiency, **a National Wheat Program**, aimed at covering half of the country's needs with Senegalese wheat by 2035, is implemented by the Government over the period 2022-2025, around five components:

- Seed multiplication
- Seeking support
- Technology transfer
- Institutionalization of the sector
- Accompanying measures

The Government is supported by other initiatives, particularly those of a private operator based in Dakar, owner of a company called "La Boulangerie Jaune". This bakery aims to develop the production of Senegalese wheat to make his country less dependent on foreign countries and to create thousands of jobs.

In addition, the United Nations Development Programme (UNDP), in partnership with the Agency for the Development of Small and Medium Enterprises (ADEPME), and the Senegalese Institute of Agricultural Research (ISRA), has implemented a pilot program to support wheat cultivation to help reduce food insecurity, youth unemployment, and gender inequality.

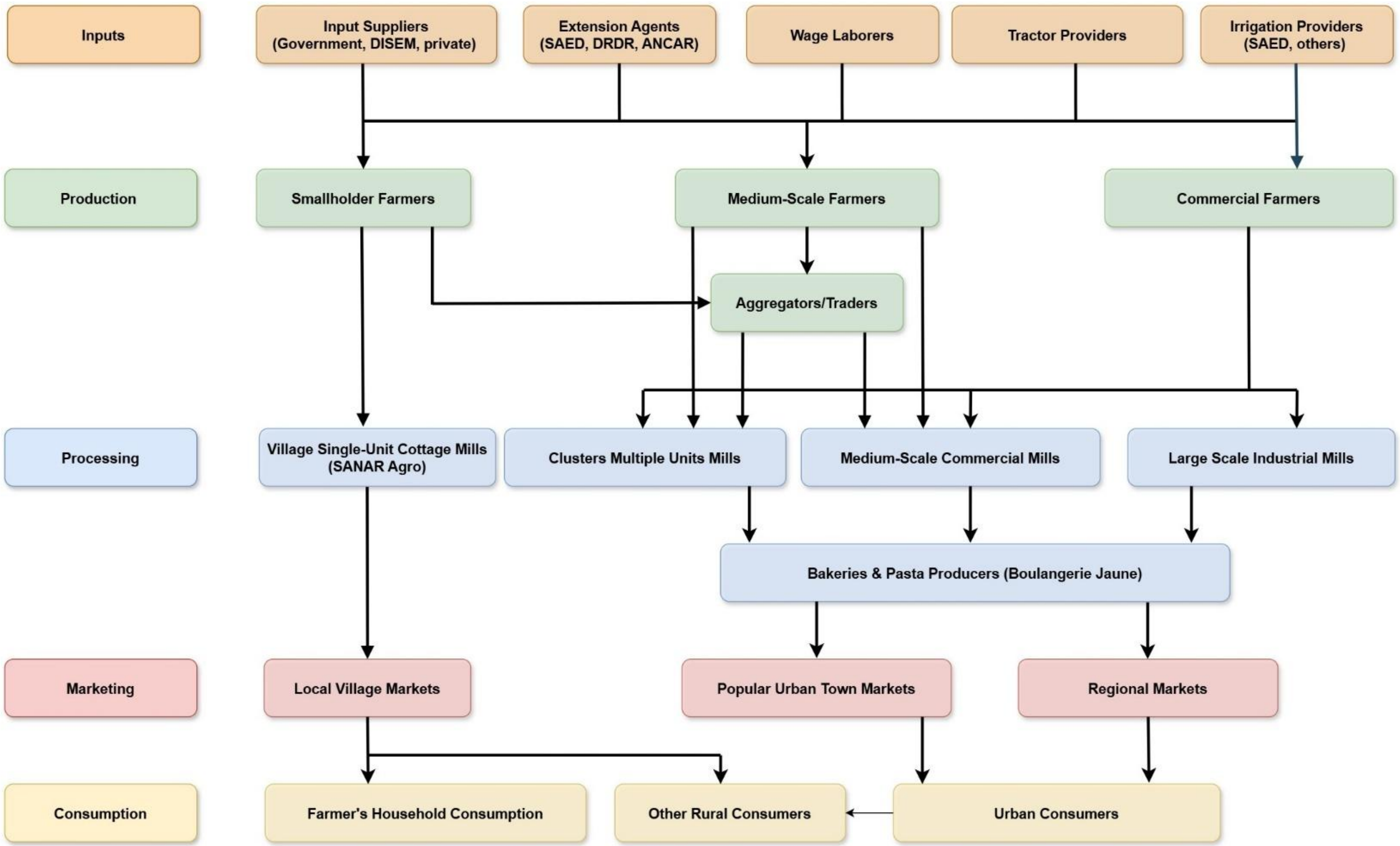
Finally, the Non-Governmental Organization (NGO) EUCORD, which commissioned this study, in conjunction with ISRA and ADEPME, is also supporting the Government of Senegal in its efforts to develop wheat production. Indeed, the NGO EUCORD is implementing, during the period 2024-2027, the Senegal Irrigated Wheat Program (BIS) project, funded by the Achmea Foundation, whose main objective is to contribute to Senegal's food self-sufficiency, particularly in cereals, through the development of local wheat production, to gradually absorb imports, fight against food insecurity and thus, to improve the standard of living of rural households.

EUCORD proposes to support the emergence of the irrigated wheat value chain in the Senegal River Valley through an intervention that will improve the incomes of at least 2,000 smallholder farmers (40% of whom are women) by 20% and the incomes of 1,000 members of processors' groups (95% women) by 10% over 3 years.

This approach is part of the government's objective to reduce Senegalese wheat imports by at least 40% over the period 2024-2028. The initiative is part of the government's strategy to reduce the bill for wheat procurement. As part of this ambition, the interventions of the Senegalese Institute of Agricultural Research (ISRA) focus on the development and supply of sufficient quantities of wheat seeds adapted to local climatic conditions to allow the cultivation of the cereal in the country.

1.3 Mapping of the actors of the wheat value chain in Senegal

The study of the value chain actors in Senegal gave rise to the diagram presented below composed of 5 main links, namely: Input suppliers, production actors, processing actors, marketing actors, and consumers. The different categories of actors within these links are presented in more detail in sections III, IV and V of this report. Detailed information is also presented in the Annex.



1.4 Development of the wheat value chain in other West African countries

Apart from Senegal, several West African countries, including Burkina Faso, Mali, Niger and Nigeria, have introduced wheat cultivation for various reasons, the two main ones being to reduce dependence on imports and to ensure the food security of the population. Indeed, in all these countries, the consumption of wheat products, including bread, pasta and wheat semolina, is at high levels, giving rise to huge imports.

In Mali, wheat production is stagnating at around 10,000 tons per year, while needs exceed 80,000 tons. In Burkina Faso, the Government has since 2023 undertaken efforts to revive local wheat production aiming to replace imports, which have reached a volume of 270,329 tons this year. However, the production in 2024, is only 250 tons. This stated desire to develop wheat production in these West African states is supported by the establishment of flour mills for the processing of imported wheat to flour. For Burkina Faso, the objective is, on the one hand, to reduce or even eliminate wheat imports and, on the other hand, to create outlets for wheat produced in the country, which should encourage producers to become more involved in wheat production, the volume of which is expected to reach 6500 tons in 2025, according to the Burkinabe authorities.

Nigeria, the second largest market for wheat in sub-Saharan Africa after Ethiopia, consumed an average of 5.8 million tons of the cereal between 2020/21 and 2022/23, according to data compiled by FAO. In Nigeria, wheat production is expected to reach 135,000 tons in 2025/26, according to projections made by the US Department of Agriculture (USDA) in its latest report published on 19 March on the West African country's cereal market.

This forecast, if realized, would reflect an increase of 13% compared to the previous season's harvest of 120 000 tons. According to the USDA, this outlook is linked to improved yields, which are expected to increase by 7% to 1.2 tons per hectare across the country thanks to the adoption of improved seeds. In addition, the area dedicated to cereal cultivation is expected to expand to 115,000 hectares, 15,000 hectares more than the previous season.

From these examples, the lesson to be learned is that wheat cultivation is developing in the West African sub-region and that Senegal has everything to gain by developing its production potential based on the availability of land and water, all along the Senegal River Valley, on the technical expertise available within ISRA, on the support of partners such as EUCORD, on committed actors, grouped around the Wheat Producers' Association and the private operator Sunu Blé (Boulangerie Jaune). The latter is developing a value chain approach with the members of the Wheat Producers' Association with whom it produces wheat in the Senegal River Valley, from seeds he helps to produce. From this wheat production, which he processes to flour under the Sunu Blé brand, he makes bread and pastry that are sold in his bakery, the "Boulangerie Jaune" which is very well known in Dakar.

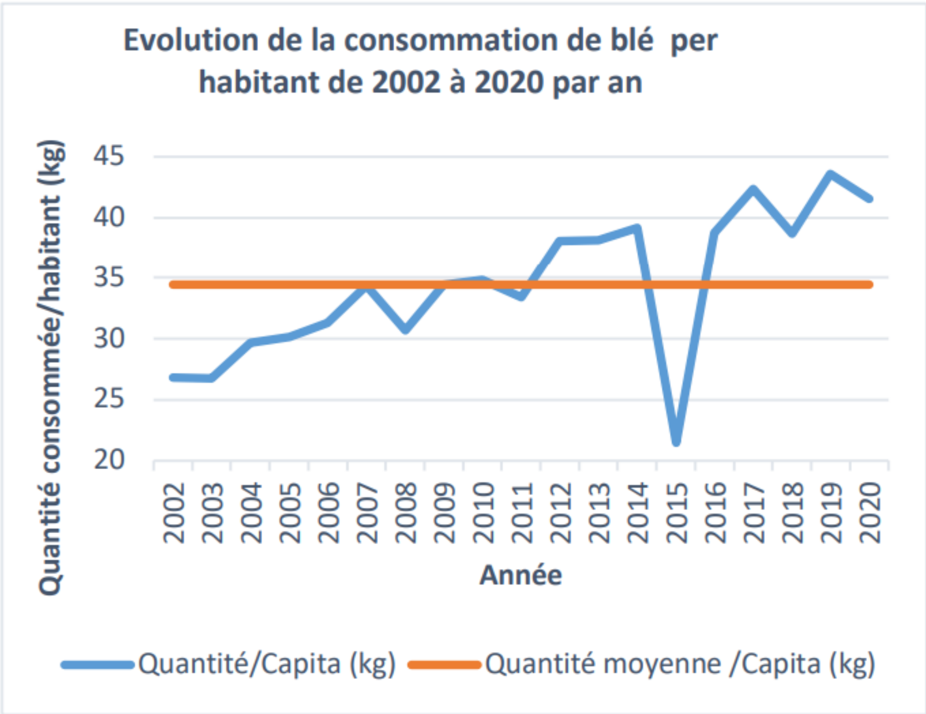

Moustapha Sall, founder of the Sunu wheat flour brand "Made in Senegal" and Boulangerie Jaune

A very committed player, this operator has created a training institution called the "School of Flour Trades" on the site of the Boulangerie Jaune in which dozens of young people are trained in the bakery and pastry trades every year.


Flour training courses organized by Boulangerie Jaune, February 2025

2 THE WHEAT MARKET IN SENEGAL

The Senegalese wheat market is mainly made up of imported wheat. Per capita wheat consumption has increased from 27 kilograms in 2002 to 42 kilograms in 2020, an increase of 56% in just 18 years, clearly showing the evolution of food habits in favor of wheat products and thus increasing imports. Indeed, according to FAO statistics, it can be observed that the latter have experienced, over the last five years, a steady upward evolution, from 706,642 tons, in 2019, to 897,798 tons, in 2023, after a slight decline to 693,996 tons, in 2020, due to Covid 19.



Source : Faostat

On the other hand, Senegalese wheat production, which is off to a very timid start, could experience a considerable development thanks to the organization and development of the seed sector. Indeed, with the organization of actors grouped together in the Association of Wheat Producers around a private operator called Sunu Blé, on the one hand, the support of ISRA and EUCORD with the Senegal Irrigated Wheat Program, on the other hand, the wheat seed sector could increase from 40 tons, in 2023-2024, to 400 tons, in 2024-2025.

This very significant increase in the expected volume of production is justified by the development of the production of certified seeds, which has a very positive knock-on effect on the areas sown and, of course, on the production of wheat for consumption. If this upward trend were to continue, Senegal's wheat sector could experience exponential development.

In conclusion, although local wheat production in Senegal is in its infancy, ongoing initiatives particularly in the Saint-Louis region, show promising potential. With adequate support and targeted investments, Senegal could gradually reduce its dependence on imports and develop a sustainable Senegalese wheat sector.

3 ACTORS IN WHEAT PRODUCTION IN SENEGAL

Current and potential players in wheat production in Senegal

Wheat cultivation has been introduced in Senegal since 1971, through trials initiated by the SAED in the Guédé area, near Podor. Hundreds of wheat varieties have been tested there.

A pre-popularization of wheat cultivation had even started in 1973 in Savoigne and in Dagana in 1975. But its adoption was soon abandoned, mainly due to a lack of political will.

Since 2005, the Senegalese Institute of Agricultural Research (ISRA) has resumed work on the crop and has undertaken a series of trials in the Senegal River Delta and Valley. Several varietal introductions (Morocco, Egypt, Mali, CIMMYT) have been made to test the performance of wheat.

In 2020, ISRA had eight wheat varieties approved, including 4 soft wheat varieties Pendao, Hamat, Dire 15, and Alioune and 4 durum wheat varieties Haby, Amina, Fanaye, and Dioufissa (Results of research on wheat cultivation in Senegal, Dr. Amadou T. SALL 2023).

These convincing and encouraging results have pushed Senegalese producers to take a greater interest in the crop because of its nutritional characteristics but also the yield obtained.

The Government of Senegal has supported this crop as part of its efforts to promote research, through the Scientific and Technical Research Impulse Fund (FIRST). In 2023, ISRA obtained funding to implement the project entitled "Diffusion of wheat cultivation in the Senegal River Valley: demonstration test for the adoption of 8 adapted varieties". These demonstrations targeted about twenty producers.

This is how EUCORD became interested in the potential for developing wheat production in Senegal, through the project initiated in August 2024, in which this study is taking place. In preparation of the production season from November 2024 to February 2025, EUCORD carried out several activities in the in the Dagana and Podor departments. This has led to the identification of several actors, who will most certainly be at the basis of the constitution of the Senegal wheat sector and its seed sub-component.

The actors identified at the production level are of six types. Apart from wheat producers (grain and seeds), there are several types of agencies that participate in the development of wheat production in Senegal:

- Extension
- Research
- Finance
- Input suppliers
- Transporters

Wheat producers. The average profile of farmers in the Senegal River Valley potentially likely to engage in wheat cultivation, is mainly composed of men (60%) aged between 20 and 65 years. The average age is 50 years, with 30% of young people (<35 years old). The main income of these farmers comes from agriculture: mainly rice, with two cycles of rice cultivation (double cropping) practiced in the Senegal River Valley: (i) from May to September/October (rainy season), and (ii) from January/March to May/July (hot dry season). Wheat cultivation is done during the first half of the cold dry season, with a 3-month cycle that runs approximately from November 15 to February 15. During this period, rice is not cultivated and most of the land (90%) is fallow. The remaining 10% is used for horticulture such as tomato, chili, onion, etc. for which outlets are not always assured.

The main constraints of these actors adopting wheat cultivation are at several levels:

- Skills required in view of the novelty of wheat cultivation
- The need for technical support
- The choice of soils suitable for wheat cultivation (well drained, non-saline, well-prepared soils with good levelling)
- The lack of land preparation and harvesting equipment
- Seed availability

Following the first production season of wheat supported by EUCORD, great enthusiasm was observed among all producers met. Wheat has certain advantages that are supported by producers:

- It does not compete with rice, the main crop in the area, as it's not grown during the same period
- It is about half as demanding in water as rice
- Its cultivation, according to producers, is less costly
- Post-harvest operations are less restrictive
- It is part of their diet
- It produces more valuable straw to feed animals than rice
- The price on the market is motivating.

Farmers who are already aware of wheat cultivation have been selected by EUCORD in partnership with ISRA to run the field schools. Seven producers were supported by EUCORD and ISRA for the implementation of the seven field schools planned in year 1 of the Senegalese Irrigated Wheat (BIS) project in different localities of the Senegal River Valley, namely: Bari diam, Thiago, Bokhol, Diagnioum, Diawar, Ross Béthio and Ndioum. Their detailed and characteristic presentations are given in the appendix.

In addition to these field schools, satellite fields have been established, including 17 fields in Dagana department and 14 in Podor department.

In addition to these field school producers, others have been identified for wheat cultivation, both for consumption and for seed. In the context of consumer production, 22 producers in the department of Dagana are mentioned in the annex.

Wheat seed producers. For R1 seed, there are 3 positioned to produce R1 seed. There are 51 producers in the department of Dagana who are listed and interested in the production of R2 seeds and 48 in the department of Podor. See the detailed lists in the annex.

For the production of R1 seeds, there are other actors. We have identified 5 of them, straddling several localities and diversified activities, often mixing large areas and projecting themselves over several hundred hectares in the short term.

Extension agencies

These are mainly SAED, ANCAR, DRDR and NGOs, even though EUCORD is currently the only international NGO active in the development of Senegalese wheat production.

Joint ISRA-SAED-EUCORD monitoring visit to a producer in charge of a demonstration field – February 2025

SAED (Société d'Aménagement et d'Exploitation des Terres du Delta du fleuve Sénégal) is a public agency. It is the main rural development agency of the Senegal River Delta and Valley that plays a key role in agricultural development, particularly in the Senegal River Valley. Its main roles are:

1. **Land development**: It is responsible for designing and building agricultural infrastructure (dikes, canals, tracks, irrigated areas, etc.) to allow the optimal use of the land.
2. **Support for producers**: It supports farmers in land development (training, technical supervision, access to inputs, agricultural advice, etc.).
3. **Water management**: It plays a crucial role in the management of water resources for irrigation, to secure production.
4. **The promotion of irrigated agriculture.**
5. **Support for local development**: It supports job creation, the support of producer organizations, and the development of rural infrastructure.

The Regional Directorate for Rural Development (DRDR) is a decentralized agency of the Ministry of Agriculture. It plays a central role in the implementation of agricultural policies at regional level. It brings together all the Ministry's services in the region, to coordinate rural development actions.

Its main mission is the coordination and harmonization of agricultural interventions. The DRDR ensures the coordination and harmonization of all interventions in the agricultural sector at the regional and departmental levels, in collaboration with the Departmental Rural Development Services (SDDR) of Dagana and Podor, which are its branches at the local level.

The main mission of ANCAR (National Agency for Agricultural and Rural Advice) in Senegal is to provide technical guidance and support to agricultural producers to promote the improvement of their practices, the productivity and the sustainability of agricultural systems. It also plays a key role in the dissemination of agricultural innovations and in building the capacity of rural actors, particularly producers, through training, technical advice and awareness-raising initiatives. Its headquarters in the northern zone is in Ndioum, department of Podor.

Its main missions are:

- **Agricultural Advice**: To provide technical advice to farmers to improve their yields and the management of their farms
- **Diffusion of agricultural technologies**: Facilitating the adoption of new technologies, agricultural practices and innovations to improve production
- **Capacity building of rural actors**: Train producers and other actors in the rural sector on sustainable resource management techniques and the development of agricultural products
- **Marketing support**: Assisting farmers in marketing their products and accessing new markets

ANCAR works for the development of Senegalese agriculture, by directly supporting producers and contributing to the implementation of the government's agricultural policies. It is an essential partner in the context of wheat extension.

The main contacts of the extension agencies in relation to the Senegal Irrigated Wheat project can be found in the annex.

Research agencies. This is mainly ISRA, which deals with agricultural research in general and wheat in particular. **ISRA (Senegalese Institute of Agricultural Research)** is one of the main research organizations in Senegal, responsible for conducting scientific and technical research in the field of agriculture. Its role is crucial for the improvement of agricultural performance, the sustainable management of natural resources, as well as the development of innovative solutions to meet the challenges of modern agriculture in Senegal. ISRA has played a key role in the development of wheat varieties in Senegal and the subregion. These varieties registered in the ECOWAS catalogue are eight: four soft wheat varieties (Pendao, Hamat, Dire 15 and Alioune) and 4 of durum wheat varieties (Haby, Amina, Fanaye, Dioufissa).

Its main activities are:

- **Scientific and technical research**: It conducts basic and applied research on various aspects of agriculture, including genetics, plant pathology, agronomy, animal husbandry, and natural resource management
- **Development of new varieties**: It works on the creation of new crop varieties (cereals, legumes, fruits, etc.) adapted to local climatic conditions and resistant to diseases
- **Improvement of agricultural techniques**: It develops and tests new agricultural practices aimed at increasing productivity, improving soil management, reducing the use of chemicals, and promoting sustainable agriculture
- **Training and dissemination of research results**: It participates in the training of researchers, agricultural technicians and producers. It also ensures the dissemination of research results to agricultural stakeholders, to ensure the practical application of innovations
- **Response to the challenges of climate change**: It is involved in research on the adaptation of agricultural systems to climate change, by developing strategies for a better resilience of farms to climatic hazards
- **Partnerships with other institutions**: It collaborates with other national and international institutions, universities, as well as agricultural organizations and development partners to strengthen research and innovation capacities in the agricultural sector, and has partnered with EUCORD and ADEPME to extend wheat production in the Senegal River Valley.

In summary, ISRA plays a fundamental role in the innovation and modernization of the Senegalese agricultural sector, by providing scientific solutions to the challenges of food production, natural resource management, and climate change.

Variety tests of soft and durum wheat at the ISRA research station in Fanaye, Senegal

Financial institutions. Twelve (12) financial institutions such as local banks or Microfinance Institutions that support the development of agriculture have been identified. However, the main bank is the Agricultural Bank of Senegal (LBA), dedicated to financing the agricultural and rural sector. The LBA offers credit to support farmers, herders, fishers, as well as other actors in the rural sector. These credits aim to improve productivity, support investment in agricultural infrastructure, and allow for better management of resources.

The main characteristics of the loans offered by La Banque Agricole du Sénégal are:

- **Production credit,** intended to finance seasonal agricultural activities (seed, fertilizer, agricultural inputs, etc.).
- **Investment credit,** to finance medium or long-term projects such as the purchase of agricultural equipment (tractors, implements, etc.), the construction of agricultural infrastructure (greenhouses, irrigation systems, etc.).
- **Working Capital Credit** makes it possible to finance the daily needs of farms, in particular the management of the production cycle.
- **Processing Credit** is intended for agricultural processing projects, such as food manufacturing, crop processing, etc.

Input suppliers. They are responsible for supplying producers with agricultural inputs. The inputs provided are mainly seed, mineral and organic fertilizers, plant protection products (herbicides, insecticides, fungicides). They also provide small agricultural equipment and phytosanitary treatment equipment. They are numerous and present throughout Senegal.

The supply of wheat seed in Senegal is currently based on the importation of seed from countries in the sub-region, particularly Mali or Egypt. The Senegalese wheat seed sector is beginning to develop and is the subject of great interest from major producers and agribusinesses, given the strong development potential of the sector.

It should be noted that the Senegalese government has shown willingness to subsidize the supply of wheat seeds in recent years, despite the difficulty of supplying producers on time.

Transporters. There are relatively many trucks to transport produce. A figures of 1,186 has been recorded. They will be able to appoint one or two representatives who will represent them at the level of the wheat sector to be set up (see table in the annex).

4 WHEAT PROCESSING STAKEHOLDERS IN SENEGAL

In Senegal, wheat processing actors are organized into groups, associations and industrial or flour milling companies.

At the lowest level are **women groups, actors in artisanal processing.** Often organized as **Economic Interest Groupings (EIGs)**, women's groups play a key role in the wheat value chain through:

- Artisanal processing: production of artisanal flour, breads and by-products.
- Innovation and integration of local cereals: incorporation of millet, maize and cassava to reduce dependence on imported wheat.
- Local marketing: sales in markets, neighborhood shops and supermarkets.

The women grouped in EIGs process wheat into various products, often by integrating local cereals. This is the case with:

- Enriched flour, a mixture of wheat flour with millet, maize or fonio to give it more nutritional value.
- Local artisanal production, sold to local consumers.
- Biscuits and pastries, including doughnuts and cakes often sold in markets and schools.
- Local pasta, an artisanal production of pasta adapted to the tastes of of the local population.
- Couscous and semolina, mixtures made from wheat and local cereals for an alternative to traditional couscous.

Many EIGs are supported by NGOs, cooperatives and government programs, including the Women's Empowerment Programme (WFP) and the DER/FJ which finance women's micro-enterprises. However, despite their contribution, women's EIGs face several challenges, including:

1. Access to raw materials, particularly dependence on imported wheat and price fluctuations making it difficult for them to be profitable.
2. Access to finance and equipment, including the lack of suitable mills and ovens, but also the difficulty in accessing bank credit.
3. Access to the market, which is very difficult, in the face of competition with large flour mills, on the one hand, and large-scale distribution, on the other hand.
4. Finally, standards and certification that impose constraints linked to health requirements and quality standards.

Women groups have enormous potential to reduce Senegal's dependence on imported wheat and promote food self-sufficiency. Better organization and increased support would allow them to play a central role in the Senegalese agri-food industry. As an example, we can mention the Sanar Agro Economic Interest Group (EIG) of the women of Sanar, a commune in the department of Saint-Louis.

This EIG is a community organization that has been active in the processing and development of Senegalese agri-food products for more than 10 years. The EIG is very dynamic, well organized and has a manufacturing and sales authorization (FRA). It is made up of 35 people, including 27 women and 8 men (2 permanent and 6 temporary) that the EIG trains to ensure the succession.

Through technical capacity building activities for its members, particularly within the framework of the UNDP Programme, implemented in partnership with ADEPME and ISRA, GIE Sanar Agro has developed its capacity to produce quality food, respecting health standards, and to access new markets. This dynamic has improved members' incomes and promoted women's economic empowerment in the St. Louis region.

Sanar Agro, illustrates the importance of women's community organizations in local economic development, by highlighting agri-food processing as a lever for growth and empowerment.

Wheat production and processing in Senegal, particularly in the Saint-Louis region, has recently made significant progress, despite climate challenges and historical dependence on imports.

However, in other localities in Senegal there are other organizations of women processors such as:

- The GIE FAM (Femmes Actives de Mbao): processes wheat and millet into enriched flour.
- The GIE Suxali Jigeen de Thiès: produces biscuits and bread made from wheat and local cereals.
- The GIE And Taxawu of Kaolack: specialized in the manufacture of enriched couscous and derived products.

As for the milling industries, they process wheat imported into Senegal into finished or semi-finished products. There are seven, all of whom are grouped within the Association of Millers of Senegal. They have an installed capacity of 3,800 tons/day, distributed as follows:

1. Les Grands Moulins de Dakar (GMD): market leader, controls a large part of Senegal's flour supply. With an installed capacity of 1500 tons/day, GMD holds 40% of the Senegalese flour market.
2. The New African Flour Mill (NMA SANDERS), with an installed capacity of 500 tons/day, holds 14% of the flour market.
3. FKS Foods, with an installed capacity of 500 tons/day, holds 18% of the flour market share.
4. Sedima, with an installed capacity of 500 tons/day, holds 10% of the flour market.
5. Olam Senegal SA, with an installed capacity of 500 tons/day, holds 16% of the flour market.
6. Baobab has an installed capacity of 150 tons/day.
7. Cheikh Ndiaye Gaïndé has an installed capacity of 150 tons/day.

These industrial units place on the Senegalese market various products derived from wheat, including wheat flour, used by bakeries and pastry shops, durum wheat semolina to produce pasta and wheat bran for animal feed. In 2023, of the 897,798 tons of imported wheat, wheat flour constitutes 80%, i.e. 718,238 tons, wheat bran 20%.

The other actors in the processing sector are the bakers, grouped within two (2) organizations called:

- The National Federation of Bakers of Senegal (FNBS), created in April 2006, is the most representative organization, present in the 14 regions of Senegal with more than 1,500 members, owners of 2,521 bakeries spread throughout the country.
- The Regroupement des Boulangers du Sénégal (RBS) is the 2nd organization that brings together some of the bakers established in the country.

It should be noted that, of the 3,800 tons/day of installed capacity, a little more than half is used, i.e. about 2,800 tons/day, leaving an available capacity of 1000 tons/day.

5 THE MARKET FOR WHEAT PRODUCTS

The bread market: in Senegal, an average of 12 million baguettes are consumed daily, made from imported soft wheat flour. On average, each Senegalese of the country's 18 million inhabitants consumes the equivalent of 237 baguettes per year.

In total, the bakery sector, which includes 2,600 production units, 700 of which are artisanal, achieves an annual turnover of around 600 billion CFA francs, the equivalent of 914,694,103 euros. The bakery sector employs nearly 100,000 workers, a population that could double with the establishment of bread kiosks.

The biscuit market: the biscuit market in Senegal is growing with a rate linked, above all, to demographics, and which is between 4 to 6%. The biggest constraint observed in biscuit production is that of inputs, particularly soft wheat flour, which is the basic input, representing 80% of the product and granulated white sugar.

For the past ten years, making biscuits has meant losing money because of the monopoly of the Grands Moulins de Dakar (GMD). Today, with the arrival of industries such as OLAM, SEDIMA, NMA Sanders in the production of pastry flour, a price war occurred between manufacturers, and the price of pastry flour has decreased by around 35%.

The pasta market: in Senegal, the market for short pasta, particularly for shells, vermicelli, twists and “mohamsa”, is buoyant. On the contrary, spaghetti is not due to the uncontrolled importation of the product by actors in the informal sector with whom it is difficult to compete.

Pasta is made from durum wheat semolina, often imported from France and Spain.

The pasta market has strong growth potential with significant export opportunities in the sub-region. An industrialist interviewed plans to invest in a 5th production line for short pasta intended solely for the Malian market where demand has exploded in recent months.

The Senegalese wheat flour market is about 718,238 tons shared by the seven (7) flour mills listed, of which five produce 98%, divided between bakery (90%), biscuit factory (5%), with the remaining 5% used by households. However, in Senegal, there are two (2) main categories of wheat flour, namely baker's flour and pastry flour and a sub-category of flour called "compound flour", intended for the manufacture of bouillon cubes that incorporate 35% flour in its composition.

The animal feed market: In addition to the wheat flour market, there is the wheat bran market in Senegal, a by-product used in the production of animal feed, mainly for livestock and poultry. The Senegalese animal feed market is estimated at 150,000 tons for livestock feed and 100,000 tons for poultry feed, for a total of 250,000 tons.

This animal feed market, which is very profitable, is of increasing interest to the industry. Today, three of the country's seven industrial units have invested in this market segment. These are NMA Sanders, SEDIMA and FKS Food, which have developed a production capacity based on animal feed that offers, on the one hand, significant export opportunities in the sub-region, particularly in Mauritania, Guinea-Conakry, Togo, Benin and Niger, and on the other hand, on the domestic market where, in addition to the private sector, the State buys yearly more than 87 billion CFA francs worth of livestock feed to support livestock farmers.

Until April 2014, Senegal had only four mills, including Grands Moulins du Sénégal (GMDS), Moulins Sentenac, FKS and NMA Sanders. **Since May 2014**, four other mills have been established, namely SEDIMA, OLAM, Baobab and Cheikh Ndiaye Gaïndé, based in Touba. However, Moulins Sentenac has been bought by NMA Sanders which, for the moment, uses the company's silos for the storage of raw materials.

As a reminder, the installed capacity of all seven industrial units is 3,800 tons/day, while production is around 2,800 tons/day.

This under-utilization of the installed capacity of industrial mills has led to an unsustainable price battle. Despite the approved price regime established by the government of Senegal, the price of a 50-kilogram bag of wheat flour has decreased from 20,000 CFA francs to 18,000 CFA francs between January and April. At the same time, the weight and price of the standard approved baguette of bread went from 210 grams to 190 grams with a price falling from 175 FCFA to 150 FCFA, a decrease of 11% observed. Worse, an industrialist sold a 50-kilogram bag at 13,500 CFA francs.

Today, the price of a 50-kilogram bag of wheat flour is 15,200 CFA francs, the weight of the standard baguette of bread is 190 grams, and its price, set by the State, is at 150 CFA francs.

However, to promote the local flour industry, the import of wheat flour has been subject to a customs duty of 35% since January 2015. On the other hand, it is exempt from the 18% VAT while flour made from the local production of millet or maize is subject to an 18% VAT. On the market, imported wheat flour is sold for 300 CFA francs while flour produced from Senegalese wheat is sold for 600 CFA francs, double that of the imported product.

Senegal still imports wheat flour. In 2023, 404 tons of wheat flour entered the country, coming from France (51.48%), India (21%), Germany (17%) and Belgium (6%).

6 CONCLUSION

Faced with this situation of dependence on imported wheat and its by-products, it is necessary to think about bold solutions that will allow the emergence of a competitive wheat sector that will contribute to the achievement of the objective of food sovereignty assigned to the National Wheat Program implemented from the Senegal River Valley.

To achieve this, considerable efforts will be needed in terms of domestic taxation, in particular by exempting processed local cereals from VAT, as well as the exemption of bakers from paying VAT.

The challenge of bringing ready-to-use flour to market for all cereals is paramount. However, it requires an inclusive approach of the actors concerned by the production, processing and sale of local cereal products, including wheat flour produced in Senegal. Therefore, multiple support measures are urgently needed to support local producers and bakers through research, agricultural advice and, above all, appropriate funding. This support would improve performance throughout the production and processing chain, as well as quality to meet the requirements of processing players, particularly those in the bakery and pastry industries.

The private sector, especially millers, is ready to support the initiatives. **The private industrial sector is interested in local wheat production.** A market is thus present, and producers would have no problem selling their production. However, commitments to purchasing local wheat would be subject to competitiveness and quality requirements. Recalling that it is the role of the State to create favorable conditions to produce such important cereal for consumption.

These private actors are already supporting the development of local cereals, by supporting the national federation of bakers so that local cereals can be incorporated. However, these private companies warn about competitiveness compared to imported wheat, even if the current context allows for margins to be considered because of global inflation on wheat due to the current crisis.

Finally, it should be noted that in the Senegal River Valley, there is a potential of 240,000 hectares of irrigable land, of which 124,000 hectares have already been developed, 52,000 hectares for rice cultivation and 72,000 hectares suitable for other forms of cultivation, including wheat. The area, in addition to these water resources, is inhabited by a population with extensive experience in irrigated production. We can therefore confirm that the irrigated land is available for wheat production.

Today, the economic situation in Senegal requires the implementation of a program to reduce "dependence on the outside world for the supply of wheat", insofar as the global context is favorable, plant material is increasingly available, climatic conditions offer possibilities and land that can be developed for wheat cultivation exists. In addition, the political will is also displayed, since food self-sufficiency is at the center of the Senegal Vision 2050 Agenda.

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