

POTENTIAL OF THE FONIO TRADITIONAL CEREAL FOR NUTRITION AND LOCAL ECONOMY IN SENEGAL

[The Fonio Day celebrated in Senegal in November 2021](#) was an opportunity to highlight the great potential of this traditional cereal to meet the country's food demand, contributing to the social and economic development of the regions where it is grown.



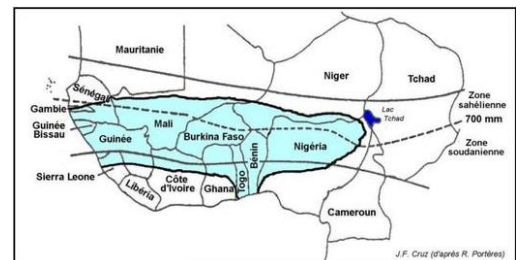
At the event, Sanoussi Diakité, the engineer inventor of the Fonio husking machine, stressed that Fonio can play an important role in reviving the economies of African countries hit by the pandemic, and called for the integration of this cereal into public development policies. The production of Fonio is still very low in Senegal, not exceeding 5,000 tonnes per year and he stressed the importance of implementing relevant strategies capable of increasing production to reach 150,000 tonnes in 5 years. It is at this level of production that Fonio will be able to cost less and allow local productive units to have enough raw materials to process, to generate wealth and employment. He called on the World Food Programme and FAO to include these objectives in the international agendas of the United Nations.



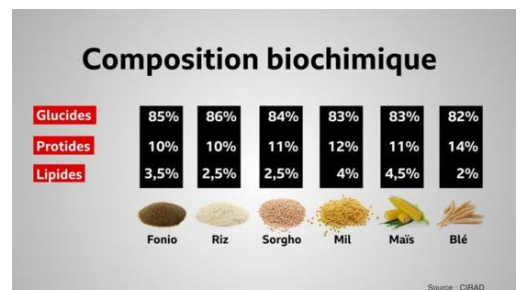
The study [Fonio, an African cereal](#), produced in 2016 for the African Union by the Centre for Agricultural Research for Development (CIRAD), is a reference document that presents the origins, geographical distribution, characteristics and the production and consumption system of this cereal in the various countries. [Fonio \(Digitaria exilis\) is regarded as the oldest indigenous cereal in West Africa](#). The first references to Fonio as a food are reported from the mid-14th Century by the Berber explorer Ibn Battûta in his "Voyage to Sudan" (modern-day Mali).



Fonio which has been harvested for thousands of years in semi-arid and subtropical areas of Sub-Saharan Africa, from Senegal to Lake Chad, comes in white (digerati exilis) or black (digerati ibura) varieties. It is an adaptable cereal, hardy grain, that is resilient to droughts; it is grown in a wide variety of environmental conditions with an ability to thrive in poor soils where other cereals would struggle to grow. Its composition is similar to that of rice, sorghum and other cereals in terms of carbohydrates, proteins and lipids. Reaching maturity in six to eight weeks, Fonio is grown in dry savannah regions, in mountain areas, in nutrient-poor soils, without the need for fertilisers or pesticides.



Beside the extraordinary characteristics of this cereal which may represent an important part of the diet of local populations, its predominantly artisanal cultivation and processing have hindered its development, being substituted by non-traditional grains of the region. Fonio yields tiny grains, which are very difficult to harvest, husk and process, and the lack of adequate and accessible tools



for local farmers has long reduced Fonio to the status of a marginal cereal, even leading to its disappearance in certain regions.

While West Africa was facing nutritional challenges for its populations, in the early 1990s, engineer Sanoussi Diakité, Professor at the Dakar Engineering Institute (Senegal), in order to rescue this lost crop invented the Fonio husking machine, making it much faster and easier to process it. [An article by WIPO](#), the World Intellectual Property Organisation, which patented the innovation in 1994, presents the history of this discovery, the process, the characteristics of the machine and the results achieved.

Produced in an electric or diesel version, the Fonio husking machine allows to process 5 kilograms of Fonio in only 8 minutes, removing over 99 % of the husk from the grains. The invention does not require high amounts of water, up to 15 liters of which are instead required when husking Fonio and separating it from sand in the traditional way. In addition, compared to existing machines, it consumes less energy (1.5 KW compared to 7.5 KW). It allows for a much cleaner shelled Fonio, without impurities, with better bleaching, which is conserved better, significantly reducing post-harvest losses.

Thanks to this new machine that allows for a quicker processing, farmers could increase the plantations of Fonio, thus encouraging the expansion of this traditional crop. The World Bank has supported a programme to enable the countrywide diffusion of the machines. Local and national governments, as well as non-governmental organizations, decided to purchase them for their use in many communities. The engineer Sanoussi Diakité and his Fonio husking machine have been recognized by important international awards mentioned in the WIPO article.

As part of its research projects in Guinea, Mali and Burkina Faso, the [Centre for Agricultural Research for Development \(CIRAD\)](#) has also developed new tools for the mechanisation of several post-harvest operations such as threshing and cleaning. Until the years 90's it created a new machine called GMBF [for the hulling and the whitening of fonio](#). In order to improve the quality of the Fonio to be marketed, [solar dryers have been designed and tested](#) in Mali, Senegal, Guinea and Burkina Faso.

These improvements in the development of Fonio postharvest technologies have undoubtedly played a key role in relaunching Fonio production in Senegal and in the other countries of origin, [registering a growth of its crop](#).

Moreover, the huge potentials of a traditional hardy grain, with high nutritional qualities, which is resilient to droughts, performs well and is adaptable to dry soils without the need of fertilizers or pesticides, are enormous. Within the framework of the challenges posed by climate change and the strategies defined by the international community to implement resilient and sustainable local food systems, strengthening the cultivation and processing of Fonio to meet the demand of consumers in sub-Saharan countries represents a perspective capable of bringing great benefits for food security and for local economies

In addition, thanks to the commercial initiatives created for its consumption by the immigrant communities, mainly from Guinea and Mali in the United States and Europe, Fonio has also attracted the interest of consumers in these countries, opening up new market potentialities.



In the areas where Fonio is cultivated in the sub-Saharan countries, there are interesting opportunities for implementing production chains to manage the whole process of cultivation, processing and marketing in the country and abroad, involving cooperatives, small enterprises and local producer associations. These production chains can already rely on the tools developed by Diakit  and by the institutes and other actors with which CIRAD collaborates in the different countries.

To know more

[Article Fonio pour relancer l' conomie des pays africains in VivAfrik](#)

[Fonio an african cereal - CIRAD publication](#)

[Article in WIPO website](#)

[Le fonio, une c r eale africaine de demain in IED Afrique](#)

[The fonio revival in roadsandkingdoms.com](#)

[D cortiqueuse de Fonio in tambacounda.info](#)

[Brochure d cortiqueuse de Fonio](#)

[Decortiqueuse de Fonio - Catalogue innovations S n gal](#)

[Grain of hope Video in rolex.org](#)

[Fonio en African Journalist Forum \(ajf-afrique.org\)](#)

[The next miracle grain in globallandscapesforum.org](#)

[Fonio website – CIRAD](#)

[Fonio in African Journal of Biotechnology](#)

[Fonio in Wageningen University](#)

[Fonio in inter-reseaux.org](#)

[Fonio in value-chains.org](#)

[The European market potential for fonio in CBI Netherlands](#)

[Le fonio in BBC News Afrique](#)

[Fonio workshop in Mali in fao.org](#)

[Le fonio au Mali: la cha ne de valeur in nuscommunity.org](#)

[Fonio in medium.com](#)

