

Improvement of fonio postharvest technology

Mechanization of processing operations



J.-F. CRUZ¹, D. DRAMÉ², S. KOUYATÉ³, C. MAROUZÉ¹, S. SAKHO³, G. SON⁴

¹ CIRAD, 73, rue Jean-François Breton, 34398 Montpellier Cedex 5, France

² IER, Laboratoire de Technologie Alimentaire, BP 258, Bamako, Mali

³ IRAG, BP 1523, Conakry, Guinea

⁴ IRSAT, Département Mécanisation, 03 BP 7047, Ouagadougou, Burkina Faso



Fonio producer in Guinea.

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Fonio: an ancient cereal

Fonio is the oldest cereal in West Africa. It is primarily eaten as cous-cous or gruel, and is currently the object of renewed interest among consumers, by virtue of its flavour and nutritional properties.

However, its very small grain size makes hulling and whitening, which are traditionally done by women using a pestle and mortar, highly laborious. To obtain a quality product, foreign bodies such as sand have to be removed by repeated washing, which makes production a lengthy and complex process. This high workload has made the crop less popular among producers, hence its higher price in relation to other cereals.



Paddy fonio grain.

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Sand separation by washing.

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Improving fonio postharvest processing technologies

To help fonio compete on the market in terms of quality and price, the CFC (Common Fund for Commodities) has funded a project aimed at improving fonio postharvest processing technologies. This regional project was placed under the aegis of the IGG (International Group on Grains) based at the FAO, and associated national research bodies in Mali (IER), Guinea (IRAG) and Burkina Faso (IRSAT), and CIRAD, the Project Executing Agency. The aim was to foster a revival of the fonio commodity chain, by improving processing techniques.

Mechanization of processing operations

Equipment design and development

The limited range of equipment available prior to the project did not fully meet producers' or processors' requirements. It was thus necessary to modify this existing equipment or design new machinery, so as to mechanize most postharvest operations (threshing, hulling, cleaning, etc). Technical studies resulted in the adaptation of a thresher and the development of the GMBF (Engelberg-type) huller-whitener and several items of cleaning equipment (winnowing channel, rotary sieves, sand separator, etc).

Factory trials

Some of the equipment was installed at small companies in rural areas, in Bamako (Mali), Bobo Dioulasso (Burkina Faso) and Labé (Guinea), and has already been used to process several dozen tonnes of fonio. The local operators found the results obtained in terms of throughput, yield and processed product quality highly satisfactory. Culinary quality analyses showed that the GMBF huller often hulls and whitens fonio more effectively than traditional methods: the germ is removed cleanly and the grain swells well and is tender when cooked.

Development of local production and support of operators

The project also included operations aimed at helping manufacturers to build equipment locally, training operators (equipment manufacturers, processors, producer groups, etc), and disseminating information, with a view to increasing the degree of mechanization of fonio postharvest processing operations and thus contributing to a revival of this long-neglected cereal.



Mechanical threshing trial in Guinea.

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GMBF huller testing in Mali.

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Sorting machine produced in Burkina Faso.

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