

TECHNICAL SHEET

3 cultivars of fonio

Presentation of fonio

The scientific name of fonio is *Digitaria exilis* Stapf. It belongs to the Poaceae family (AMSANA, 2019). Native to West Africa, fonio's cultivation area extends from Senegal to Lake Chad. Fonio is an herbaceous cereal generally less than one (1) meter in height, but which can even reach 150 cm in height and more (AMSANA, 2019). The inflorescences consist of digitate terminal panicle. The fingers or racemes are usually grouped 2 to 5 per panicle (AMSANA, 2019). The stems are culms consisting of 1-8 tillers and can even reach several dozen tillers (AMSANA, 2019). These stems are susceptible to lodging especially pronounced in the mature phase (AMSANA, 2019). The seeds are tiny with an ovoid shape and pointed tips (AMSANA, 2019). It takes 1000 seeds for 0, 4g to 0.6g (AMSANA, 2019).

Fonio can be grown on several types of soil. Fonio is traditionally grown on poor, degraded, gravelly or sandy soils (Afrique Verte, 2011). Fonio also grows on mountain soils, ferruginous soils, sandy-loam soils and indurated soils (Afrique Verte, 2011). It does not tolerate saline and clay soils (Afrique Verte, 2011).

In addition to its contribution to the fight against hunger and food insecurity, fonio has enormous socio-cultural, therapeutic, agroecological and economic importance (AMSANA, 2019). In Benin, modern processing units have claimed to be able to produce more than forty fonio-based products (paste, porridge, couscous, rusks, various cakes, bread, beer, etc.) (AMSANA, 2019). With a high nutritional value, it is recommended for diabetics, obese people, pregnant women, nurses, children and the elderly (AMSANA, 2019). Rich in mineral salts and amino acids, fonio is an interesting food alternative for people intolerant to gluten (AMSANA, 2019). Its composition, close to that of sorghum or rice, it is suitable for the diet of people with celiac disease (AMSANA, 2019).

Fonio is overall lower in protein than other cereals but is known for its high levels of the essential amino acids methionine and cystine (Cruz et al, 2012). In Africa, it is known as a tasty and highly digestible cereal and is traditionally recommended for children, pregnant women, overweight people, and sometimes even diabetics (Cruz et al, 2012). Being gluten-free, it allows celiac disease patients to diversify their diet (Cruz et al, 2012).

Fonio is a "dressed" cereal whose grains, upon harvest, are covered with inedible outer husks (Cruz et al, 2012). Traditionally consumed white, like rice, fonio must first be dehulled to remove the outer husks and then bleached to remove the bran (Cruz et al, 2012). These hulling and bleaching operations are traditionally performed by women using mortars and pestles (Cruz et al, 2012). They carry out 3 to 4 successive poundings interspersed with winnowing and then a final pounding to obtain blanched fonio (Cruz et al, 2012).

Fonio seed

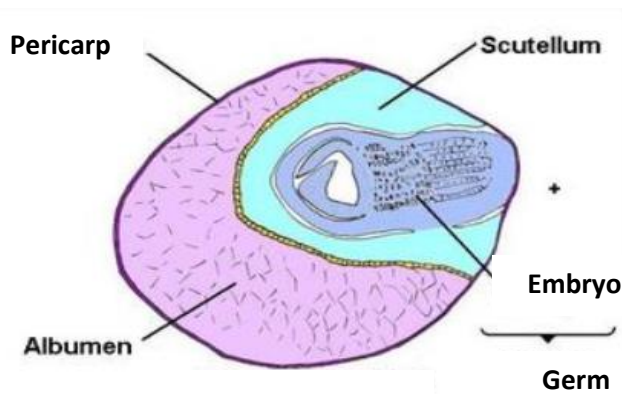


Figure 1 : structure of the fonio seed (source Cruz, 2011)

Fonio processing

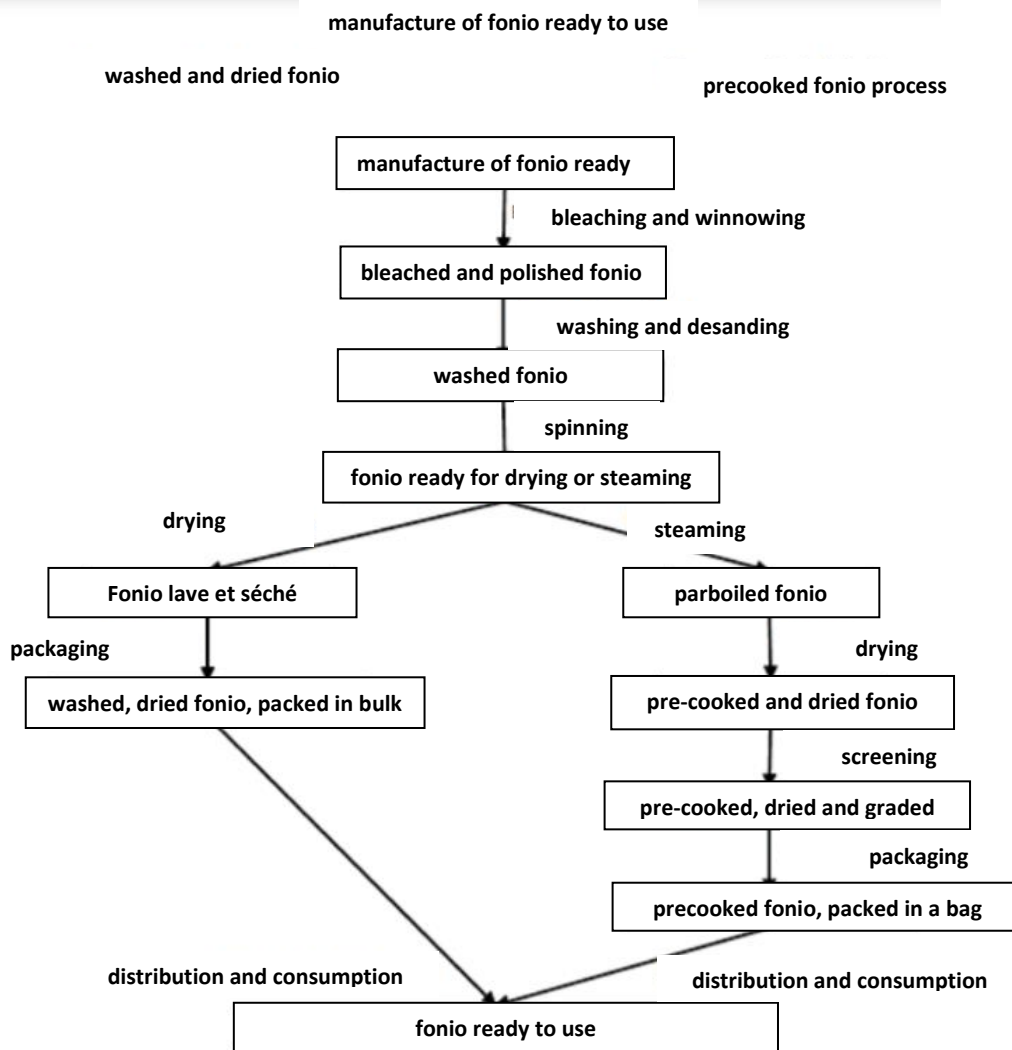


Figure 2 : fonio transformation process (source : AMASANA, 2016)

Characteristics of the technology

Potential yield of 1.2 tons/ha

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Regional Center of Excellency on Dry Cerals and Associated Crops ; HOST INSTITUTION: CENTRE D'ETUDES RÉGIONAL POUR L'AMÉLIORATION DE L'ADAPTATION À LA SECHERESSE (CERAAS) ; Host country: Senegal; Coordinator: Ndjido KANE; Email: ndjido.Kane@isra.sn; ndjido.Kane@isra.sn; Telephone: +221 777232019 / +221 339514693