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BREWING WITH FONIO: A GRAIN FROM THE CRADLE OF HUMANKIND

9 min read

Africa is a treasure trove of brewing heritage. A rich variety of traditional brews are still widely produced across the continent, from umqombothi[1] in South Africa to Omuramba in Uganda.[2] The vast majority of these traditional brews remain largely unknown beyond their regions of origin, while the ingredients used to produce them — such as millet, sorghum, and teff — are still rarely explored in the West, whether in cooking or in the production of fermented beverages. But as the African continent's contribution to global agriculture gradually gains international recognition, so too are its many indigenous grains.

Fonio, in particular, has been gaining increased attention as a resilient crop that thrives in harsh climatic conditions and performs exceptionally well in drought-prone regions such as West Africa. Stretching from Senegal's Atlantic coast to Chad, this area has cultivated fonio for over 5,000 years, with some sources citing its domestication as far back as 4,500 BCE.[3]

Fonio has long been valued for its quick growth, tolerance to dry, nutrient-poor soils, and relatively strong nutritional profile, but following the widespread adoption of maize and Asian rice in West African economies — along with a growing reliance on imported cereals in recent times — interest in this native crop declined among local populations. In recent years, however, fonio has experienced a real resurgence. Thanks to its gluten-free nature, fonio has gained growing popularity as a "superfood", particularly among consumers with diabetes or gluten intolerance.[4]

"So much rice is imported from far away — especially in places like Senegal, where my family is from — and it's often seen as a status symbol to be able to buy and prepare it," says Malick Diedhiou of US-based ingredient supplier Terra Ingredients, which imports fonio into North America. "Yet, nutritionally, rice doesn't stand a chance against fonio. It has a low glycaemic index, an impressive mineral profile, and is far more resilient."

Fonio was first popularized as a food ingredient by New York-based Senegalese chef Pierre Thiam. Then, the international attention that followed its rise as a health food eventually sparked growing interest in its potential as a brewing ingredient, too. Celebrity brewer Garrett Oliver of New York's Brooklyn Brewery introduced fonio to the international brewing scene by incorporating the grain into a series of releases and through his *Brewing for Impact* project — a collaboration with seven breweries around the world aimed at showcasing the potential of this ancient grain.

Just a few years after Oliver's first experiments, fonio is already being used widely — and with considerable success — across the globe. Last year, sustainably focused Scottish brewery Brewgooder launched a fonio session IPA (4.3% ABV), which has secured placements in some of the country's largest national retailers, including Sainsbury's, Waitrose, The Co-op, and with the UK's national carrier British Airways.[5]

A DIFFICULT GRAIN TO WORK WITH

Fonio has even found its way into brews closer to its ancestral homeland.

"One day, my wife Marie and I travelled to the east of Senegal and discovered fonio. We learned about its many benefits and decided we wanted to use it," says Raphaël Hilarion, brewer and owner of Dakar-based Maison Kalao.

He brought a few kilos back to Dakar to begin experimenting, and eventually connected with the grain's most prominent advocate, Chef Thiam, and even collaborated with Garrett Oliver himself on a special brew.

"We didn't know how to use it in beer, so we reached out to Brooklyn Brewery, and Garrett helped us understand the process," Hilarion continues. "Now, our fonio-based beer is our best-seller."

Alongside his flagship label (brewed with 20% fonio), Hilarion produces three more beers featuring the grain: one that blends several local cereals, a mango-infused brew, and a Belgian-style Tripel. He also experimented with a 100% fonio beer, though this never became part of the regular lineup as fonio's characteristics make it a compelling yet technically demanding ingredient for brewers. Its small grain size and lack of husk can complicate the brewing process, particularly when used in high proportions: "It's such a small cereal — almost like sesame, or even a grain of sand," Hilarion explains. "The best way to use it is at around 15–20%. Any more than that, and it starts to get complicated. You have to strain it, and because it's so fine, it's difficult to filter."

For Alan Mahon, Founder and CEO of Brewgooder, the threshold for successfully using fonio is even lower. "We couldn't really make a 100% fonio beer," he explains. "It's more like how you'd use oats — an important part of the malt bill, but not the majority. In fact, we use 10% in the recipe. Once you push it into the high teens, it starts to noticeably change how the beer is experienced by the consumer."

RahrBSG, the North American distributor of Terra Ingredients' fonio, recommends using it at rates of up to 40%, but Salt Lake City–based Kiitos Brewing managed to push the boundaries further, successfully brewing a fonio-only recipe.

“Having a unique system at our brewery that can process alternative grains most equipment can’t, I was inspired to try a 100% fonio beer to truly understand the kind of flavor fonio brings to a fermented beverage,” says Patrick Bourque, Director of Brewing at Kiitos. To let the ingredient truly shine, Bourque kept his recipe minimalistic — no hops and just a neutral yeast strain for fermentation.

“The brew itself was a challenge for a myriad of reasons,” he notes. “We had no idea what to expect from the grain in terms of sugar extraction… Unlike barley, fonio lacks the enzymes needed to convert its starches into sugars, so we had to rely on our experience with enzyme additions to facilitate this conversion. Additionally, fonio doesn’t contain the nutrients required to support fermentation on its own, so we added nutrients during fermentation to keep the yeast healthy.”

While relying on enzymes from conventional grains or using commercial brewing enzymes during the mashing process can effectively break down fonio’s starches into fermentable sugars, most fonio currently available — including that supplied in North America through RahrBSG — is fairly straightforward to use. This is because it is already de-hulled, requires no milling, and has been pre-steamed, which gelatinizes the starch, allowing the enzymes to convert them more effectively and quickly into shorter, fermentable sugars.

UNIQUE FLAVORS

Despite the inherent challenges of brewing with fonio, those who have experimented with it are overwhelmingly enthusiastic proponents, quoting its ability to deliver distinctive and complex flavor profiles as well as unique textures as a key factor behind its appeal.

When cooked as a food (often prepared in a similar way to couscous or porridge), fonio offers a gentle nutty flavor, similar to toasted oats or lightly roasted grains, and these notes do often carry through into the beers — albeit subtly. Its most distinctive aromatic contributions, however, are vibrant tropical fruit notes like white grape, lychee, gooseberry, and mango combined with a certain wine-like character, which many brewers compare to the delicate profiles found in some types of saké and other rice-based brews. Additionally, fonio can lend a soft, rounded, and silky mouthfeel, thus enhancing the overall texture of the beer.

“I’d say fonio brings its own distinct flavor profile that can add unique accents to a brewer’s beer,” says Bourque. “With its tropical character after fermentation, it’s a perfect candidate for IPAs or any fruit-forward style.”

MORE FOR EVERYONE

Sourcing fonio for beer production is becoming increasingly easier and cheaper, with growing availability and gradually decreasing prices. “A whole ecosystem is being created around fonio,” Diedhiou points out. “More villages are cultivating it because it provides a higher income for farmers, and numerous cooperatives have been established to bring it to market.”

Fonio is also receiving strong backing from local governments across the Sahel region, where political priorities have been shifting toward food self-sufficiency,[6] and fonio is increasingly seen as a promising crop to help achieve that goal. “The Minister of Agriculture in Guinea frequently emphasizes that fonio is a top priority,” Diedhiou confirms, “this is crucial for improving seed availability and increasing planted area.”

Widespread political support, combined with growing interest from international markets, is poised to further benefit fonio advocates by accelerating research into the grain, an area that has so far remained largely underdeveloped, even when compared to other African crops.

“The most common variety of fonio used by farmers here in Africa is the pale variety, and that’s the one currently used by brewers too,” explains Laura Layousse of CAA, a Senegal-based leader in fonio processing. “But there’s also black fonio, along with many other varieties.” She notes that until recently, research interest in the crop was minimal, but that’s starting to shift thanks to growing lobbying efforts. “To position fonio as a key crop for Africa (and as a more sustainable solution for the future of the planet) we need greater investment in research focused on its applications in food and brewing, as well as on improving harvest yields.”

Beyond its clear environmental benefits, the growing use of fonio holds significant social promise, too. It can help revive a food culture that has long been sidelined in favor of cheaper, more industrially convenient crops, while supporting the development of sustainable livelihoods for local farmers. With fonio reportedly costing three to four times more than rice across the region, increased demand and scaled-up production could gradually lower prices, making this nutritious, locally grown grain more accessible to the communities that have cultivated it for generations.

“Fonio is a lost crop in West Africa, and now is the time to rediscover it,” says Hilarion. “By using more of these traditional grains in both cooking and brewing, we’re not only uncovering new flavors and contributing positively to the world’s climate, but we’re also creating a growing demand that can help democratize fonio and empower regions where little else can grow.”

By Dr. Jacopo Mazzeo

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[1] https://www.mdpi.com/888606

[2] https://www.ajol.info/index.php/ajfand/article/view/19108

[3] https://www.researchgate.net/publication/373710851_Discovering_Fonio_Millet_West_Africa’s_Ancient_Super

[4] https://journals.rdagriculture.in/wp-content/uploads/2024/08/01-discovering-fonio-millet-west-africas-ancient-superfood.pdf

[5] https://www.brewgooder.com/blogs/news/introducing-the-world-s-first-beer-made-with-fairtrade-fonio-grain

[6] https://pubmed.ncbi.nlm.nih.gov/12288134/