

Access to bio-fortified sorghum (Zabuwa and Deko)



1. Pioneer partnership

Access to bio-fortified sorghum (Zabuwa) was piloted in the sorghum partnership in Nigeria led by Nalmaco and Adefunke-Desh in 2018-2019. Nalmaco and Adefunke-Desh are large scale regional grain aggregators based in North Western Nigeria off-taking 35,000 tons of white sorghum from SHFs and local aggregators. They add value by grading and cleaning grains before supplying to large scale processors including Nestle, Honey Well and Cadbury. The partnership with Nalmaco and Adefunke-Desh aims to empower sorghum SHFs through the adoption of Good Agricultural Practices (GAPs) and enhancing access to inputs to increase production and supply of high-quality sorghum as well improve household nutrition by offering foods rich in micronutrients for BoP consumers.

Traditional sorghum varieties grown by farmers lack essential micronutrients such as zinc and iron in the right quantities to meet their nutritional needs. This is partly because farmers lack knowledge of and access to these improved bio-fortified sorghum varieties. The increase in demand for white and yellow sorghum by these aggregators from 10,000MT per year to 35,000MT means additional clusters of SHFs must be formed and linked to the companies to meet its demand. This also entails facilitating access to inputs including bio-fortified varieties. 2SCALE in collaboration with ICRISAT introduced bio-fortified sorghum varieties to SHFs in the partnership.



2. Replicable practice

Biofortification is a process of improving the micronutrient content of crops through conventional plant breeding, genetic modification, or agronomic practices. Biofortification of staple food crops brings advantages due to long-term cost-effectiveness and its potential to reach and deliver sustained beneficial impact within urban and rural populations. Investment in developing and delivering bio-fortified crops provides poor farmers with nutrient rich crops at low cost which can be further adapted to cultivars suited for different geographical locations. Bio-fortified sorghum is high in zinc and iron, up to three times higher than conventional varieties. It has been recommended for infants, the elderly, pregnant and lactating mothers because of its high caloric and nutritional value. There are cases of iron and zinc deficiency among low-income farmers. Bio-fortified sorghum has an average yield of 2.4-2.8 tons per ha compared to yield of less than 1 ton per ha for local varieties.

Two bio-fortified sorghum varieties (Zabuwa and Deko) developed by ICRISAT and a team of scientists in the Nigerian National Agricultural Research System were introduced in Funtua and Kuki ABCs. Learning plots were set up with 10 farmers in Funtua in 2018 and in 2019, a further 100 women farmers in Kuki were supported to grow these varieties. Actors that participated in the pilot included SHFs, women processors, ICRISAT, BSS team members and the two aggregators (Nalmaco and Adefunke-Desh).

In summary, this practice is addressing constraints in terms of:

Inclusion	<ul style="list-style-type: none"> • Ownership: Smallholder farmers have access to land and cultivate bio-fortified sorghum seeds using improved practices to meet the quality standards (mycotoxin and pesticide free) of aggregators and small-scale processors. • Voice: With Increased awareness of the benefits of consuming bio-fortified sorghum and opportunities for women producers, SHFs make decisions to invest in production, aggregation, and supply of more volumes of bio-fortified sorghum, better negotiate supply contracts and get premium prices for quality.
Access to Nutritious Food	<ul style="list-style-type: none"> • Affordability: The bio-fortified sorghum seeds are affordable and SHFs in the partnership are willing to pay because there is no significant price difference between the bio-fortified sorghum and other improved sorghum varieties like CSR01 & 02. • Acceptability: Bio-fortified sorghum is accepted by small holder farmers in the partnership as the varieties are not different physically from other traditional and improved seeds. The bio-fortified sorghum varieties have been approved for registration by national committee on naming, registration and release of crop varieties, livestock breeds and fisheries.

3. Preconditions for replication

The following conditions are necessary for this replicable practice to succeed:

Empower community input dealers to produce bio fortified sorghum seeds

To ensure the availability of bio-fortified sorghum in various rural communities in the cluster areas, there is need to provide technical support to local community-based input dealers to propagate and produce bio-fortified seeds for easy access to small holder farmers in the PPP.

Drought resistance and early maturing

The bio-fortified sorghum seeds can help to overcome terminal drought prevalent in the Sahel and Sudan and similar locations. The seeds are early maturing with 50% flowering in 67 days against the average 90 days for other varieties.

Awareness creation

Awareness creation is needed to get more producers and consumers to accept bio-fortified sorghum by properly educating them to know their nutritional benefits.

4. Results Achieved

- The SHFs (incl. women processors) were empowered with access to bio-fortified sorghum seeds. This increased their productivity and use of fortified sorghum which they process into nutritious Fura balls for BoP consumers and supply to aggregators.
- 500 tons of bio-fortified sorghum seed were produced and made available to farmers.
- A bio-fortified sorghum women producers' cooperative was formed in Kuki cluster to lead the production and sale of the seeds.

Want to know more?

To know more about this practice, please reach out to JohnPaul Chime, jchime@2scale.org Sorghum Partnership Facilitator or Maxwell Olitsa, molitsa@2scale.org Country Team Leader, 2SCALE Nigeria.

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