



BeNu Foods: Fighting Malnutrition in Ethiopia, One Biscuit at a Time

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BeNu Fortified Biscuits going into the oven.
(Photo courtesy of BeNu Foods)

BeNu, an Ethiopian startup, is tackling child malnutrition through nutrient-rich biscuits made from locally sourced ingredients like soybeans and chickpeas. Their biscuits provide essential protein and calories, helping boost school attendance and children's health in informal studies. Although smaller in scale currently, BeNu is committed to improving food security while also driving local economic growth to create jobs and enhance household incomes. Challenges include ingredient sourcing, dietary education, and scaling production. Their future goals hope to address all of this by optimizing formulations, expanding distribution, and launching a one-for-one model where a biscuit bought is a biscuit donated to children in need. With strategic partnerships, BeNu aims to scale its impact, ensuring long-term nutritional solutions for Ethiopia's most vulnerable populations.

Food Science in Action:

- ✓ Product Development
- ✓ Food Processing
- ✓ Nutrition
- ✓ Food Packaging
- ✓ Food Safety

Introduction

Natural disasters and conflict have resulted in food insecurity causing significant child undernutrition in Ethiopia. The negative effects of child malnutrition can be felt across the individual's life span leading to poor work and school performance, cognitive challenges, and poor overall health. Over the last two decades,

the Ethiopian government has made efforts to overcome the challenge of malnutrition in their nation and has successfully reduced stunting (a marker of chronic malnutrition in children) from 51% to 37%.^{1,2} Furthermore, strides have been made, which have reduced child wasting and child undernutrition from 12% to 7% and 37% to 21%, respectively.³ Half of infant and child deaths have been attributed to the effects of malnutrition

in Ethiopia.⁴ Amongst the other nations of Africa, the people of Ethiopia have the lowest rate of childhood dietary diversity which further contributes to the problem of suboptimal nutritional status in this area.⁵

Project Overview

In contributing to Ethiopian efforts to combat malnutrition, especially in children and pregnant women, the Ethiopian startup, [BeNu](#),⁶ was formed to create products that fill the nutritional void left by poor diet. The BeNu team, including co-founders Betelhem Lakew (Figure 1) and Amen Temesgen, take great pride in developing biscuits that can contribute a significant amount of calories and protein in a child's day in the fight against suboptimal nutrition. Their innovative biscuits, made from an assortment of different local ingredients procured from the biggest open market in East Africa, include oats, peanuts, and soybeans, and contain high levels of protein (Figure 2).

Known as Super Nutritionist Betty, Betelhem originally intended on studying architecture but was eventually accepted into the food science and nutrition program at Addis Ababa Science and Technology University. Betelhem is especially passionate about nutrition having also created a nutritional consulting company called Lehem, which incorporates nutritional research type services in addition to individual counseling on healthy eating practices.^{7,8}

Because demand varies, BeNu's daily production ranges between 800-1,500 biscuits a day, or

about 17,000 biscuits a month. Each biscuit weighs 16 grams, and is packaged in plastic cookie packaging and secondary cardboard packaging. Their original flavor biscuits are available in individual packs (4 biscuits per pack), medium packs (12 biscuits per pack), and bulk pack. Even though their current operation is small, they do have a standing mixer, biscuit cutter machine, industrial ovens, cooling racks, and a packaging machine to produce consistent quality products.

Food safety is a critical component to BeNu Foods. Besides only sourcing from trusted partners, their production facility follows Good Manufacturing Practices (GMP) including routine cleaning, equipment sanitization, and personal hygiene protocols for workers. They also have proper storage conditions to maintain freshness, and their finished packaging follows local food safety regulations to give clear label information about nutritional content, ingredients, and expiration dates.

BeNu biscuits are marketed primarily to parents and caregivers, emphasizing their nutritional benefits for children. The product is also promoted to schools (Figure 3), NGOs, and health organizations interested in food security and child nutrition. They have partnered and collaborated with organizations like local agribusiness incubator BlueMoon Ethiopia, Global Alliance for Improved Nutrition (GAIN), and nutritional ingredient company DSM. Their current distribution channels include direct sales at health-related events and small retail operations (Figure 4).



Figure 1. Betelhem Lahaw, Co-Founder of BeNu Foods. (Photo courtesy of BeNu Foods)

Successes

Since its inception, BeNu has made significant strides in improving nutritional outcomes in Ethiopia, with measurable impacts observed in communities where their products are distributed, including:

- Increased school attendance and cognitive performance

In Melka Oba, a village in southern Ethiopia, BeNu distributed its biscuits to approximately 150–200 children daily. As a direct result, school attendance increased by nearly 50%,



Figure 2. Packaged BeNu Fortified Biscuits (top picture). Ingredients and Nutrition Facts Information of BeNu Biscuits (bottom picture). (Photo courtesy of BeNu Foods)

and better academic performance was noted. In addition to improved physical health, children consuming BeNu's fortified biscuits have shown better cognitive performance, as evidenced by higher test scores.

measured by hand measurements, head circumference, weight, and height. Once BeNu is able to produce on a larger scale, they hope to donate and provide a continuous amount of product to collect more robust data on the efficacy of their biscuits.

- Improved nutritional status

A small-scale informal research was conducted to understand the impact. It has been observed that their interventions contributed to a considerable decrease in malnutrition rates. Children who regularly consumed the biscuits experienced better overall health, evidenced by a reduction in the rates of underweight and stunting, as

- Economic impact

By sourcing ingredients locally from the largest open-air market in East Africa, BeNu has supported both farmers and vendors and by involving community members in the production process, has created job opportunities that have positively impacted household income levels. The organization's



Figure 3. Ethiopian school children congregating following receipt of BeNu fortified biscuits. (Photo courtesy of BeNu Foods)

contribution to the local economy has helped improve food security at the household level, as families become less reliant on external food aid.

Looking Ahead

Lessons Learned and Challenges

BeNu's journey in addressing malnutrition has provided valuable insights into the complexities of implementing nutrition-based interventions in Ethiopia. Some key lessons include:

- **Formulation challenges**

During formula development, the main challenge was achieving the protein target without using fortification like whey protein, which would have negative sensory impacts at such high usage levels. Initially, comments around their cookies were that they were too chewy and not crispy enough. They have made improvements since then, but they are still working on the process to refine and optimize the color, shape, and consistency.

- **Sourcing challenges**

BeNu used to source from local farmers, but farmers have small volumes and could not supply in bulk. While using locally sourced ingredients has been a cornerstone of BeNu's sustainability strategy, ensuring a consistent supply has been challenging. Factors such as seasonal variations, weather conditions, and logistical issues have occasionally disrupted production. To mitigate this, BeNu is exploring partnerships with more stable, diversified suppliers and investing in storage infrastructure. In order to save cost, they also used a connection to leverage warehouse fees where they store and produce products.

- **Changing dietary habits**

Educating communities about the benefits of fortified foods has been crucial to BeNu's success. However, overcoming deep-rooted traditional dietary practices takes time and consistent engagement. For example, many parents give packaged food to kids, but they are usually unhealthy choices, and the parents do not understand how foods and nutrition affect their kids. Building trust with local communities and using culturally

appropriate messaging to educate parents at school health-related events have been essential for BeNu in promoting its products.

- **Scaling while maintaining quality**

As demand for BeNu's products grows, scaling production without compromising on quality has presented a challenge. BeNu has recognized the need for investment in better machinery and stricter quality control processes to maintain the high nutritional standards of its biscuits as production scales up. Because their process is more manual, there have sometimes been challenges with maintaining the consistent quality of the biscuits, that they hope automated machinery will help resolve.

Next Steps

BeNu's future plans are focused on expanding its impact and ensuring the long-term sustainability of its operations. Key next steps include:

- **One-for-One Model**

BeNu has goals to launch a "One-for-One" marketing strategy to help distribute their product to as many children as possible. For every biscuit sold, another is given to a child in a lower income community. Unfortunately,

packaging is a main driver of expenses that is preventing them from launching the One-for-One model. They currently use clear plastic flow wrapping with secondary BeNu branded cardboard cartons to package their cookies, but they hope to purchase larger bulk order custom graphic printed packaging to reduce costs in the future.

- **Scaling up production**

BeNu currently supplies 5 schools, but they plan to increase their production capacity by investing in more efficient machinery and expanding its production facilities. They hope to supply multiple schools of 300-600 children. This will enable the organization to meet growing demand and expand into new regions where malnutrition remains a critical issue. They need more funding to increase production.

- **Product innovation and formula optimization**

In response to the evolving nutritional needs of different demographic groups, BeNu is developing new fortified products, such as biscuits enriched with quinoa and amaranth, which are high in protein and essential amino acids. This product diversification will allow BeNu to cater to a broader audience, including adults and pregnant women. Amaranth, soybeans, chickpeas, and orange-fleshed sweet potato are locally available ingredients in the country, but soybeans are mostly being exported, so they are working to change the formula to chickpeas since it is more readily available.

- **Strengthening partnerships**

BeNu aims to forge stronger partnerships with governmental and non-governmental organizations, both locally and internationally, to secure funding, expand distribution networks, and advocate for nutrition-focused policies.



Figure 4. Marketing BeNu Foods at an event in Ethiopia. (Photo courtesy of BeNu Foods)

- Sustainability initiatives

BeNu is committed to enhancing its sustainability efforts by exploring environmentally friendly packaging options and increasing the use of renewable energy in its production processes. This aligns with the organization's broader goal of promoting sustainable development in Ethiopia.

BeNu's successes highlight the value of food science—particularly nutrition-focused product development, as well as food processing and packaging—in international development efforts to positively impact local communities.

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