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Innovation in food fortification

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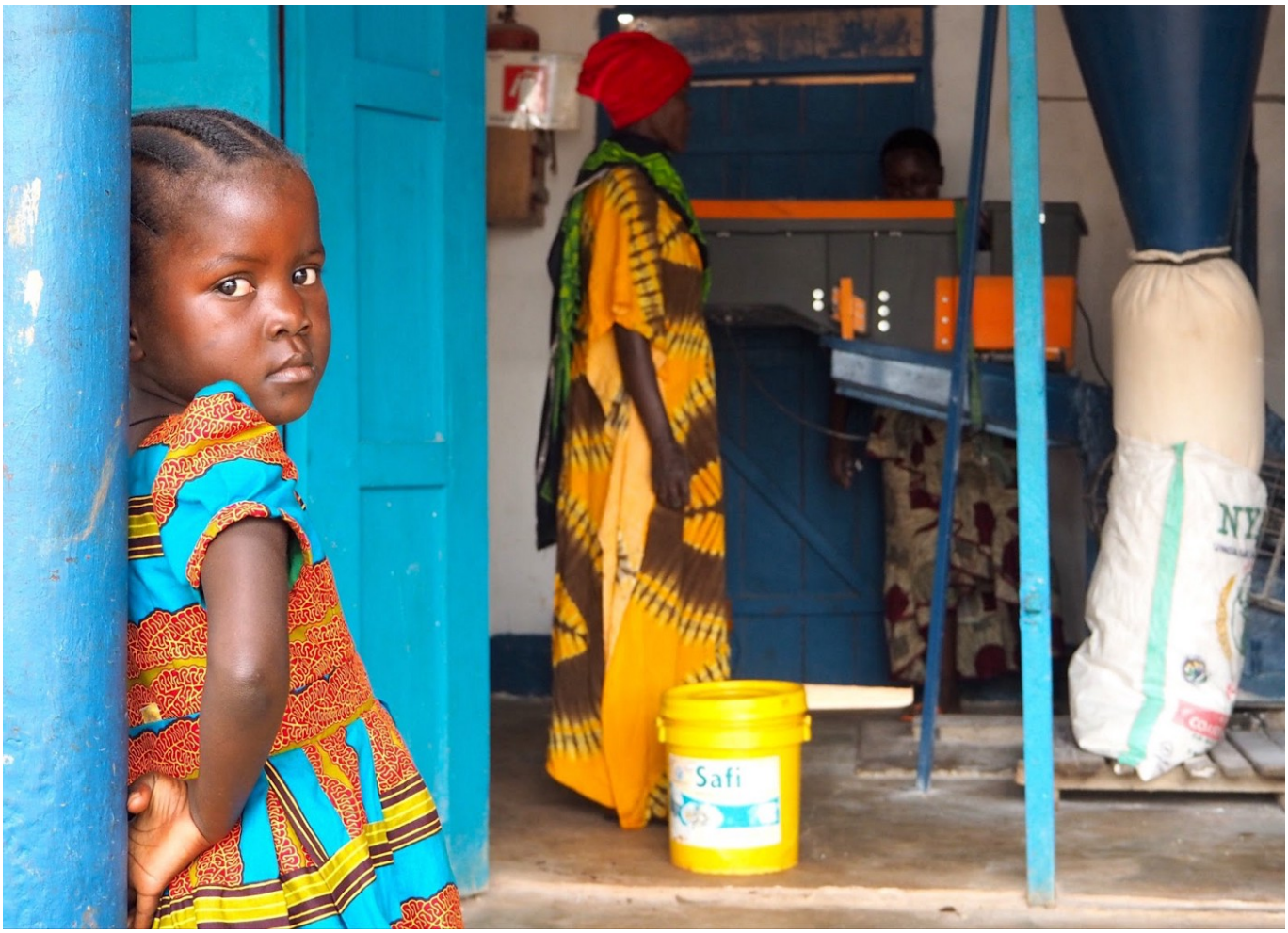
Digital tools are making a big impact on nutrition among COVID-vulnerable populations

By Vida Gabe

Two billion people in the world do not have the adequate intake of key micronutrients their bodies need due to the lack of access to nutritious food. While micronutrient deficiencies go frequently unnoticed because their symptoms are often unseen, their impact is far from invisible.

Iodine deficiency prevails as the world's leading cause of brain damage. Iron deficiency brings severe sequelae for mothers and babies. Vitamin A deficiency remains a widespread public health problem. It is the leading cause of night blindness in young children and preschool-age children and women of reproductive age are the two population groups most commonly recognized to be at risk of this immunodeficiency disorder.



Children experiencing hidden hunger are unable to reach their full potential. Photo: WFP/Leah Kidd

This form of malnutrition has long-lasting and devastating consequences. Children are unable to learn and reach their full potential, adults are less productive, and household poverty is exacerbated, trapping communities into a vicious cycle of poverty and poor health. To address this hidden hunger, WFP is working with the Bill & Melinda Gates Foundation to support innovations that are critical to fortification programs.

What is food fortification?

Food fortification involves adding micronutrients (vitamins and minerals) to foods, with little effect on taste and cooking properties. This process not only helps address malnutrition but has also been proven to help avert disease, improve earnings and enhance work productivity.

Why is it important?

Most countries have established legislative standards for at least one fortified food vehicle (oil, salt, wheat, rice, or maize) however, globally, not enough fortified foods are making their way into markets and reaching those most in need; and of the ones that do, low fortification quality remains an issue. Quality improvements in recent years have largely been achieved through premix accreditation services through platforms such as the GAIN (Global Alliance for Improved Nutrition) Premix Facility and the traditional capacity building of industry, labs, and government regulators. While these efforts have been significant in addressing malnutrition, there is an opportunity to maximize efficiency and increase fortification quality by investing in digital technologies.

If fortification quality was digitally recorded in the milling/processing environments, this would make the process easier, and thus more transparent. As a result, this could incentivize the milling industry and downstream buyers to ensure the product they are producing and/or buying meets fortification standards. This, in turn, would drive the adoption of more digital technologies. It would also lessen the need for government oversight systems, which rely on periodic visits to production environments and checks on fortification quality in markets.

The digitization of the food fortification process is especially critical in the face of COVID-19 impact on fortification programs, particularly for vulnerable populations in rural areas who have been most affected. Expanding the use of existing digital tools to support the reach of fortified foods to these vulnerable groups, while also building towards the future, will help us reach our goal of Zero Hunger.

How are the UN World Food Programme (WFP) and the WFP Innovation Accelerator supporting food fortification?

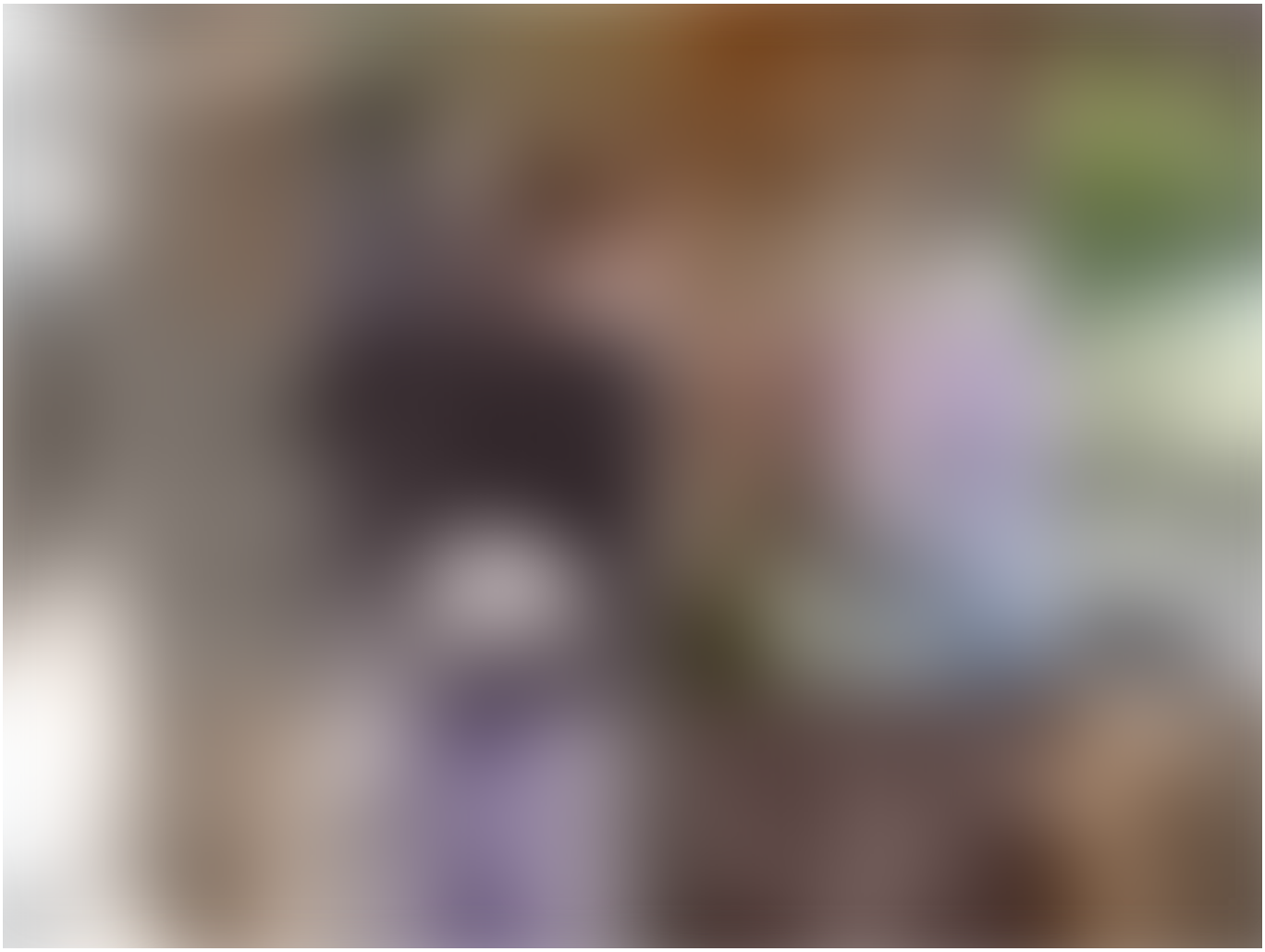
Since 2004, WFP has been sourcing and providing fortified foods, such as cereals, oils, and salt, for our programs and food distributions. We also play a facilitating role in countries, connecting and supporting governments and private sector actors to fortify staple foods locally, as well as advocating for fortification in national and international policy.

The WFP Innovation Accelerator is working with the Bill & Melinda Gates Foundation to improve access to fortified foods amongst the most vulnerable populations through the strategic development and scale-up of fit innovations. The innovations are expected to

address the short-term impact of COVID-19 while advancing research and development, and building successful market expansion models for sustainability in the long term. The application of digital tools holds transformative potential for food systems by raising awareness and transparency of the nutritional quality of basic staples that form the basis of the daily diet.

Currently, the WFP Innovation Accelerator is working with the following projects to scale their ideas on food fortification:

Sanku



Khalima, a food trader in Tanzania, uses fortified flour to prepare meals for her customers and to feed her family. Photo: WFP/Mussa Yunus

Sanku provides fortification tools, training, and other support to small-scale flour mills, enabling them to fortify their flour with essential micronutrients. Using an innovative business model, Sanku offers its partner millers the use of a cellular-connected dosifier

(a machine that mixes the right amount of nutrients into the flour) provided they sign up for Sanku's Pink Bag program. Through the Pink Bag Program, Sanku bulk buys high-quality empty flour bags, which are sold to Sanku's partner millers at the market price. The margin from bag sales covers the cost of the added nutrients. This means that small-scale, rural millers can sell branded, fortified flour at the same price as standard flour. Sanku monitors the miller's use of the dosifier through the cellular link and visits the mill if the dosifier is not in use or needs repair, as well as to restock their nutrients.

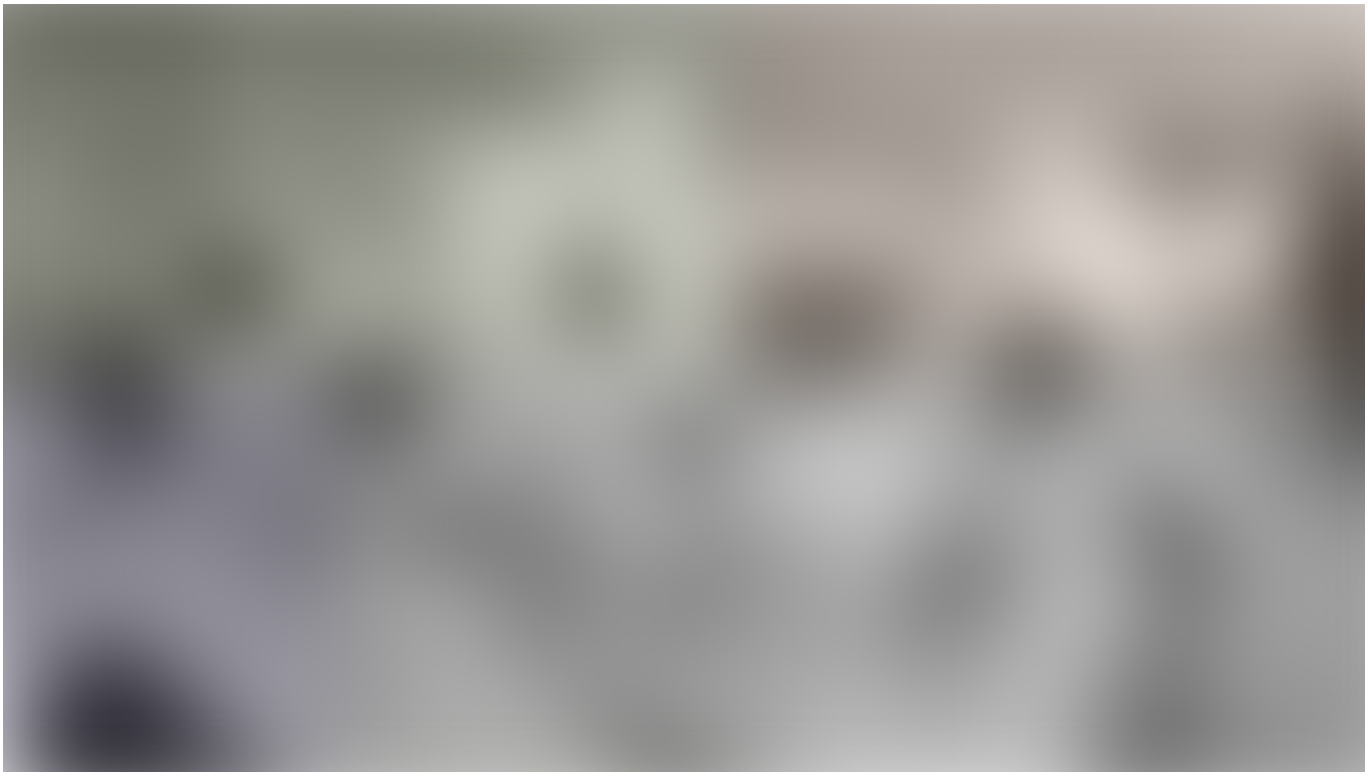
In collaboration with research institutions, non-profit, government, and private sector partners, Sanku is designing business models for expansion into new territories, while identifying improvements to the existing model and developing complementary products and services. The aim is to increase Sanku's reach, operational efficiency, and fortification quality by also identifying the right incentives for people to purchase and consume fortified foods.

Sanku's work has already led to several accolades. In 2019, Sanku was awarded by Fast Company as one of Africa's Top Ten Most Innovative Companies for the year and by Time Magazine as one of the Top 100 Inventions of 2019. This year, it has been commended by Mackenzie Scott as one of 286 high-impact organizations, and its CEO, Felix Brooks-

church was recognized as one of the five 2021 Rolex Awards Laureates, for his invention of the Sanku dosifier.

To learn more about Sanku, go here.

BioAnalyt



iCheck training during a workshop by Bühler African Milling School and TechnoServe Kenya. Photo: WFP/BioAnalyt

Globally, it is estimated that less than half of large-scale producers of fortified foods are consistently fortifying their products according to national standards, primarily due to a lack of food control capacity and incentive structures for the industry. Consumers are most affected, as the staple foods that are labeled as fortified often lack the micronutrients they claim to contain. To improve, monitoring data must be collected, interpreted, and communicated in a secure and actionable manner.

BioAnalyt works on providing field-friendly quality assessment tools that increase the measurement of food fortification impact.

Through innovative technology, BioAnalyt developed the iCheck pipeline for a wide variety of vitamins and minerals. The iCheck devices are portable, faster, more

affordable, and user friendly than traditional lab equipment, and have been proven in 60+ low- and middle-income countries. iCheck can drive compliance by making the monitoring process more cost- and time-effective due to real-time data collection and processing.

Currently being tested in Pakistan, and Nigeria, the project team is working on building iCheck Connect; a digital companion to the iCheck devices that will enable sharing of food fortification data to support analysis and incentivize compliance with national regulations.

To learn more about BioAnalyt, go here.

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The WFP Innovation Accelerator sources, supports and scales high-potential solutions to end hunger worldwide. We provide WFP staff, entrepreneurs, start-ups, companies and non-governmental organizations with access to funding, mentorship, hands-on support and WFP operations.

Find out more about us: http://innovation.wfp.org. Subscribe to our e-newsletter. Follow us on Twitter and LinkedIn and watch our videos on YouTube.

Fortification | Innovation | Vitamin Deficiency | Hidden Hunger | Foodfortification