At a global level, considerable research gains have been achieved in identifying cutting edge innovations that can effectively tackle the high burden of malnutrition such as the industrial application of Artificial Technology (AI), Internet of Things (IoT), Block Chain Technology to name a few.

Through the SUN Pitch Competition, the SUN Business Network in collaboration with key partners aims to distil the current global discourse on food innovation to challenge and support SMEs in Africa and Asia to identify and scale up disruptive, appropriate and commercially viable innovations that can improve the availability of affordable nutritious foods, especially to vulnerable populations.

Against this backdrop, the theme for the 2021 SUN Pitch Competition is ‘Unleashing the power within’.

In particular, this year’s SUN Pitch Competition will focus on identifying innovative SMEs that can provide big, inspiring and disruptive investment solutions to one of the following food system innovation areas: (i) food design (ii) post-harvest loss reduction (iii) market connectivity and (iv) food safety.

Building on this theme, the SUN Pitch Competition will crowd in the broader investment community to channel investment towards the scaling up of transformative innovations in food systems that can spark a fundamental shift in the way food is grown and supplied to consumers by SMEs. The SUN Pitch Competition also aims to crowd in technical assistance partners that can support SMEs to develop and integrate new innovations into existing business models and effectively manage the associated risks and challenges in the adoption of food system innovations.
WHAT INNOVATIONS ARE WE FOCUSING ON?
Starting with how food is designed or produced is a fantastic way to maximize the nutrients entering the food system. Food design means considering the entire food product’s life cycle from how it is grown (e.g. improving seed varieties), prepared (e.g. product reformulation or nutrient fortification), and its desirability (e.g. enhanced healthy flavouring) to consumers. Under this innovation area, the SUN Pitch Competition is soliciting investment proposals that aim to answer the following:

**How can your business offer an innovative solution to develop or introduce new, affordable and nutritious food products for local vulnerable populations?**

Some investment examples may include:
- Production of new food products using value-added indigenous foods for local markets e.g. millet-based foods, sorghum, amaranth, and other high-quality nutritious grains and seeds.
- Investment in product reformulation that is focused on reducing sugar, fats and salts in processed foods.
- Production of new processed bio fortified products such as orange flesh sweet potato flour.
- Introduction of existing nutritious fortified and enriched products to new local markets.
- Development of alternative proteins e.g. insect-based and plant-based proteins.
- Adoption of new food production technologies e.g. 3D-printed food, edible food coating and cellular agriculture.
CASE STUDY: FOOD DESIGN INNOVATION

Millet Based Foods - Millet is a group of small-seeded grasses that have been grown over the past 7000 years in both Africa and Asia. These crops require less water to grow than other grains, making it more efficient and drought resistant. Millet can be scaled to replace less nutritious grains, especially those that are harder to grow. However, for this to be achieved, millet would need to disrupt parts of food systems where traditional grains like maize, rice, and wheat, have traditionally dominated. Processing millet into end-products that mimics traditional grain products, such as bread or tortillas, offers an opportunity to do just that.

ICRISAT’s Smart Food initiative is accelerating international support for the research and development of millet-based products and value chains. Hybrid and open-pollinated varieties have taken off in India in particular, where the population is dense and infrastructure stable. Therefore, more millet-based food products are even showing up in schools and university hostels. In Malawi, millet has also been cultivated successfully to meet the needs of local populations. The key to increasing the accessibility and affordability of millet-based foods is to increase consumer demand, support millet value chains, and orient supply toward local markets rather than export markets.
THEME AREA 2: POST-HARVEST LOSS REDUCTION INNOVATIONS

With approximately 800 million suffering from hunger and 2 billion suffering from nutrient deficiencies in low- and middle-income countries, a staggering amount of the world’s food nonetheless goes uneaten. Estimates vary, but in Sub-Saharan Africa alone, somewhere between 30-60% of food that is grown never reaches the plates of consumers. Much of this loss happens between when the food is harvested and when it reaches the market, a challenge known as post-harvest food loss (PHL). Processing and value addition closer to the point of production reduces post-harvest loss, ensures nutrient retention, and increases the volume of nutritious foods on the market. Under this innovation area, the SUN Pitch Competition is soliciting investment proposals that aim to answer the following:

How can your business offer an innovative solution to reduce post-harvest losses along the supply chain and ensure the retention of nutrients in nutritious food?

Some investment examples may include:

- Adoption of proximate processing that aims to bring processing and value addition closer to the point of production e.g. modular factories, near-farm processing and mobile packhouses.
- Adoption of cold chain innovations at the last mile e.g. near farm mobile pre-cooling, small-scale cooling boxes, packhouse units and solar-powered cold storage facilities.
- Adoption of low cost solar drying solutions that offer a simple, cost-efficient method to prevent food spoilage in areas where the ability to distribute products is limited and cold chain is lacking.
- Adoption of new models to handle logistics e.g. stackable and reusable crates.
- Development of post-harvest loss monitoring technologies or systems e.g. ethylene monitoring.
A mobile unit that acts as a produce aggregator, offering farmers access to pre-cooling, transport, cold storage, and possibly even sale of crops to local or distant markets. Instead of having farmers bring their crops to a storage warehouse, a mobile unit would come to the farm, eliminating transportation barriers for rural, smallholder farmers. Pre-cooling packhouses typically contain adaptive refrigeration systems that adjust to the needs of specific crop varieties, extending the holding life of perishable foods. Mobile pre-cooling and packhouse units provide farmers access to pre-cooling technologies when cold storage is not immediately available. This innovation reduces food waste, extends shelf life, preserves nutritional quality, and reduces microbial food safety risks. Increased product availability across markets can also stabilize demand, providing farmers with an incentive to increase production.

In India, Promethean Power Systems has successfully rolled out mobile chilling systems for dairy producers, and Pick ‘N Serve enables farmers to pre-cool bananas on site before transporting them to reefer storage containers. As the units are more widely adopted, they will spur SMEs in urban and rural areas alike to invest in high-quality storage, sorting, packing, and distribution facilities. This potential for a domino effect calls for stakeholders to develop a replicable framework for scaling this innovation.
There is often a gap between forecasting what nutritious food is being produced versus what consumers demand. The lack of information sharing whilst forecasting food production and demand can cause overproduction or undersupply of nutritious foods. This can also lead to speculation in the market and sporadic prices which creates challenges to business planning and profits. Market Connectivity provides a systematic source of information across supply gaps and price fluctuations within markets, creating a more efficient trading system in which nutritious foods are made available where and when they are needed. Under this innovation area, the SUN Pitch Competition is soliciting investment proposals that aim to answer the following:

**How can your business offer an innovative solution to improve the linkage between the supply, demand and distribution of affordable nutritious foods to especially remote populations?**

Some investment examples may include:
- Development or adoption of technologies and models that enable market brokerage between local producers and distributors of affordable nutritious foods to consumers in especially remote or low-income areas e.g. market brokerage via mobile devices, on-demand food shopping, online farmers markets, subscription-based food delivery, on-demand third party logistics, smart contracts, predictive supply chain analytics, blockchain backed technology, sharing economy for produce delivery, milk vending machines.
- Development or adoption of pricing models based on freshness.
- Exploring secondary markets for food waste.
CASE STUDY: MARKET CONNECTIVITY INNOVATIONS

From distinct buyer and seller requirements, automated market brokerage systems can determine best available buyer-seller matches. They provide a systematic source of information across supply gaps and price fluctuations within markets, creating a more efficient trading system in which nutritious foods are made available where and when they are needed. For valuable products varying in quality over seasons and across locations, market brokerage via mobile apps can connect supply and demand over distances, increasing access to nutritious foods, stabilising prices, and even driving product diversification.

To adapt this market connectivity innovation to local contexts, market brokerage services such as Kudu and AgriNet Uganda utilise SMS prompts rather than relying on smartphone capabilities. Yeelda in Nigeria offers similar services to both local industries and multinationals, while Cellulant’s Agrikore employs blockchain based smart-contracts to connect farmers, aggregators, financial institutions, and governments. In such cases, high user engagement with market demands can help drive collaboration across sectors to scale impact.
The World Health Organization estimates that food contaminated with bacteria, viruses, parasites, toxins, or chemicals causes more than 600 million people to fall ill and 420,000 to die worldwide every year. Illness linked to unsafe food overloads healthcare systems and damages economies, trade, and tourism. The impact of unsafe food costs low- and middle-income economies around $95 billion in lost productivity each year. Due to these public health challenges, food safety must be built into every stage of business operations. Poor food safety quality puts at risk a company’s brand and could negatively impact sales and profits. Under this innovation area, the SUN Pitch Competition is soliciting investment proposals that aim to answer the following:

**How can your business offer an innovative solution to ensure food safety along the supply chain to improve the local consumption of safe and nutritious foods?**

Some investment examples may include:
- Development or adoption of value-added traceability technology that tracks the path of food from farm to fork.
- Development or adoption of more affordable tools to test products to ensure food safety and quality e.g. detection of aflatoxins, crop/animal disease diagnostic apps.
- Development or adoption of food labeling technology e.g. to show temperature and shelf-life.
- Use of mobile technology to monitor food safety e.g. SMS alerts of temperature breaches.
- Adoption of disease-resistant crops and animals.
- Development or adoption of models to scale training on food safety including GAP (Good Agricultural Practices), GMP (Good Manufacturing Practices), GHP (Good Handling Practices).
CASE STUDY: FOOD SAFETY INNOVATIONS

Traceability is a supply chain tool that tracks the path of food from farm to fork. If made available to consumers and the public, data collected can enable consumer education around the origin of foods purchased in markets and aid the identification of goods affected by food safety concerns. Value-added traceability captures transaction data across value chain operations, allowing for transparency among different supply chain stages as related to price increase and added value. By utilizing data to increase the value of product delivery and sale across each transaction, this innovation incentivizes the adoption of traceability systems, enables value chain efficiency, and promotes accountability for how goods are handled throughout the supply chain. This information on supply helps reduce postharvest loss, a systemic issue in food systems in emerging markets.

Kenya-based Virtual City has successfully rolled out a mobile application that enables real-time tracking and monitoring of agricultural value addition. By helping markets and farmers to understand how their products are being handled up- and down-stream in the value chain, this innovation offers an opportunity to bring more safe, nutritious foods to market.
ABOUT US

The SUN Pitch Competition is the flagship event of the SUN Business Network.

In 2010, the Scaling Up Nutrition (SUN) Movement was launched to support national leadership and collective action to scale up nutrition. The SUN Business Network (SBN) is one of the four global networks that support SUN countries (along with UN, Civil Society and Donor Networks). It is convened by the Global Alliance for Improved Nutrition (GAIN) and the UN World Food Programme (WFP) and further supported by an Advisory Group comprised of senior business leaders.

The SBN aims to reduce malnutrition in all its forms through mobilising business to invest and innovate in responsible and sustainable actions and operations. To do this SBN provides a neutral platform to broker partnerships and collaboration between business and all actors on nutrition at national, regional and global level to support SUN Country plans.

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