



Food science has much to offer humanitarian aid

Words by Donna Rosa

Have you noticed that the latest advances in food science and technology, touted to feed the world, haven't really been leveraged to feed the world's hungry?

With all the whiz-bang technology and convenience that's been applied to food, the 26.4 per cent of the global population who experienced severe and moderate food insecurity in 2018 aren't reaping the benefits. It's high time we paid some attention to those who most need our expertise.

Thankfully, a new movement is afoot in the food industry to help address this need. An emerging field, called Humanitarian Food Science and Technology (HFST), offers innovative solutions to reduce food insecurity and malnutrition.

What is HFST?

HFST is the application of food science and technology to enhance food security, health, and economic prosperity for global humanitarian and development purposes.

Food-related aid has traditionally

centred on humanitarian crises, agriculture in development, and nutrition in both. These are critically important areas for addressing food insecurity, but HFST seeks to create a more comprehensive food system that would allow food science to connect and enhance all three.

It can be utilised in both acute and chronic aid situations, and would incorporate long-term sustainability and food options that are precisely fit for purpose.

Key characteristics

HFST's holistic and inclusive methodology includes the following features:

- Emphasises long-term development approaches to include prevention, relief, improvement and rehabilitation
- Implemented in consultation with local communities and other partners
- Utilises locally sourced materials and resources
- Employs culturally appropriate and

innovative food solutions

- Human centred
- Economically and technically feasible
- Sustainable
- Useful in both long-term development and emergency relief situations

HFST implementation is multidisciplinary, involving experts in nutrition, product development, food safety, compliance, process engineering and quality control. It also encourages partnerships with governments, the private sector, donors, NGOs, academia and other organisations. In addition, the design and execution of HFST projects requires the involvement of the intended beneficiaries, particularly women.

The backstory

The field of Humanitarian Food Science and Technology was first organised after the 2017 AIFST Humanitarian Food Science and Technology Symposium, the first

conference of its kind in the world.

An international committee was formed to expand HFST globally and seek implementation of global aid work. The working group consists of representatives of AIFST, the CSIRO and the University of New South Wales, as well as representatives from UN agencies, universities, and individuals in Asia, Europe, and the United States.

The initiative is growing with the implementation of a new program sponsored by the international division of the Institute of Food Technologists (IFT). Over the course of three years, five teams of IFT volunteers will work with global food organisations, collect case studies, develop informative communications, build capacity for HFST work, and help execute real-world projects. IFT and AIFST are planning joint webinars, podcasts and other informational and outreach activities to increase awareness and interest in HFST.

Exciting possibilities

The potential applications of food science in international development and aid are diverse and compelling, including:

- Improvements in nutrition, stability, sensory attributes and cultural relevance of emergency rations
- Shelf life extension through basic processing, natural preservation and better packaging to make food available during 'lean seasons' and reduce post harvest waste
- Value addition for local agricultural products and creation of inclusive value chains that increase profits, jobs and consumer choices and sustain resilience against future shocks
- Creative utilisation of nutritious local foods and ingredients and improved bioavailability of nutrients
- Innovative food engineering and robust, low-cost process development to enable efficient food production under difficult conditions, or utilise alternative sustainable energy sources
- Custom products for specific conditions, circumstances or

populations

- Improved food safety, quality and compliance through knowledge-sharing
- Waste reduction and reuse at every step of the humanitarian food supply chain

Every food science discipline has something to contribute to HFST, whether it's alternative protein research, sensory and behavioural science, carbohydrate chemistry or food storage options.

A word of caution

HFST is about food that is nutritious, safe, affordable and compliant with local regulations and food habits. As scientists, we can sometimes get enamoured with technology, but this should never be the driver for what we do.

Food must meet situational needs first and foremost, and the creative use of technology, both old and new, is only a means to an end. In fact, despite the unquestionable benefit and importance of food science and technology, we should always remember that food should be as minimally processed as possible for optimal feasibility, affordability and nutrition.

What's needed

With the establishment of this new specialised field, much work is ahead.

First, specific HFST curricula must be developed for universities globally. Trained and specialised food scientists are needed to set up food processing in challenging conditions such as ongoing power outages, sub-standard equipment, limited resources, unreliable and intermittent raw material supplies and weak supply chains, uneducated labour and a lack of compliance.

Second, affordable education and training are required to transfer the necessary skills to developing countries. We need to embrace E-learning as an effective and easily implemented tool to accomplish this. It is essential to have people on the ground (ideally locals) to properly develop and process foods. Capacity

building is also needed in regulatory, nutrition, and other supporting disciplines.

Third, it is critical to create awareness in the aid industry regarding the potential impact food science can have on reducing food insecurity. International development practitioners require accurate and well-documented information to encourage them to incorporate HFST in their programs, and convincing evidence will help persuade them to allocate the appropriate resources.

Successful incorporation of food science and technology in developing regions requires multilateral cooperation including the private sector, international governmental donor agencies (such as the UN, DFAT, USAID and GIZ), local governments and international and local NGOs. Food aid must move beyond traditional rations and agricultural practices to include local post-farm production and the latest advances in food technology and nutritional science.

Most food scientists can probably envisage ways to apply their expertise to end hunger in the world. Many want to help, but don't have a way to do so. HFST is the way. We must create a cadre of trained professionals with specific experience and understanding of the use of food science in developing and emerging countries, and then help the aid industry understand and implement it.

If you have questions, need further information, or would like to be involved in HFST, email the author at donna@donnamrosa.com or contact Fiona Fleming at fiona.fleming@aifst.com.au.

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