

Science of safety: Singapore's Future Ready Food Safety Hub outlines novel foods, agriculture and aquaculture focus

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Singapore-based Future Ready Food Safety Hub, known as FRESH, will focus on novel foods, aquaculture and agriculture to support the nation's food security goals and meet the needs of consumers.

FRESH is a tripartite organisation established in April this year as a joint initiative between Nanyang Technological University (NTU), Singapore Food Agency (SFA) and Agency for Science, Technology and Research (A*STAR). It aims to strengthen Singapore's food safety ecosystem, support food security goals and enhance collaboration.

In an interview with *FoodNavigator-Asia*, Dr Benjamin Smith, director of FRESH said one of the biggest challenges in food safety is the complexity of the food supply chain.

With the ongoing pandemic, it only puts more pressure on the supply chain with resources strained, scarcity of food, and potential for food fraud because less food is coming in.

For a country like Singapore, which imports 90% of its food, any impact on the global food system would severally affect the nation's food security.

The Singapore government has launched an initiative to produce 30% of nutritional needs locally by 2030. With its existing expertise in technology and limited arable land, the country has turned to food sources such as cellular meats, aquaculture and urban farming as feasible future alternatives.

"FRESH is focused on these areas because we need to develop the right tools ensure the safety of the food hitting our plates, whether it's farmed or made in the lab," Smith said.

Novel foods and alternative proteins

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The novel food space in Singapore includes foods made from a range of different processes and sources such as cellular technology, microbial fermentation and insect protein, although insect protein it is not new in some parts of Asia.

"It's interesting there may actually be more hesitation over something like an insect protein than cellular meat because consumers see it as different from current food sources whereas cellular meat is equated with the animal origin. I think the fact that we are a very technologically driven society has an influence on how Singaporean's view lab based food innovations."

*"As these novel foods and technologies start entering the market, we have to be mindful that the innovation of these new foods is **outpacing** the regulation and safety frameworks that we have in place,*

"What we are trying to do is ensure we meet the food security needs of the population before it is too late. To do that, we have to support innovation in a timely manner; regulators and safety assessors have to work closely with industry scientists and integrate safety as part of the development process, so that we can make sure these novel innovations safely hit our plates now and not 10 to 20 years down the track."

Within FRESH, its R&D pillar will research, develop and validate new safety and risk assessment protocols for novel foods and technologies, as well as support the development of standards and regulations.

Another pillar, risk communication, involves working with SFA and the industry to enhance consumer education for novel food safety.

Under its consultancy pillar, FRESH will provide guidelines on newly developed risk assessment protocols, assist companies and SFA to plan studies to ascertain and substantiate the safety of new products and novel foods.

Working together

For new aquaculture or agriculture products, FRESH will use data analytics to cut down the risk of food fraud and assure food safety.

Beyond the science of safety, FRESH aims to offer a collaborative environment for start-ups, MNCs, academia and regulators.

"We are looking at how we can bring all the stakeholders in the ecosystem together to contribute to ensuring food safety for Singapore and the region."

"Food safety involves everyone, we can't do this alone, and we shouldn't be doing it alone."

Besides working on finished product or ingredients, Smith said FRESH also aims to work with other stakeholders who want to support the growth of these industries, such as manufacturers looking to build processing and pilot plants, as well as vendors who offer new approaches in food safety analysis such as rapid tests for contaminants or on-site testing.

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"There's not so much of a change in the confidence of Singaporeans around the regulatory structures, the population has a high confidence that the food hitting their table is safe," he said.

"But we noticed that in today's discussion age with social media, more people are talking about novel foods and wanting to understand how they are produced, how food safety is undertaken.

"People want to know the benefits and risks of these novel foods, what it means to move from animal-based foods to plant based foods."

Beyond the standard hazards of microbial, chemical and physical contaminants, people are wanting to understand how food affects their body.

"We're starting to see a lot of consumers not just wanting to know that their food isn't growing bacteria or contaminated and making them sick, but they also want to understand how can they can eat better and I think that's an interesting area of food safety to start delving into."

One of the key pillars of FRESH is a focus on risk communication. *"We need to understand what consumers are saying and what the safety and the regulatory people are saying is understood by consumers, this leads to acceptance of such products."*

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