

# experience SINGAPORE

## FEEDING THE FUTURE



focus

The innovative ways in which Singapore is addressing the issue of food security for its population

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# ED'S NOTE



Dear readers,

Singapore's small land area and high population density leave little space for farming. It is no surprise that we import over 90 per cent of the food we consume. However, this leaves us vulnerable to external factors that can affect our food supply with little warning. This was put under the spotlight recently, when Malaysia, traditionally one of Singapore's biggest suppliers of foodstuff, implemented a ban on the export of chickens to ensure supply for its domestic market.

To mitigate the impact of external factors on our food supply, the Singapore Food Agency (SFA) follows a three-pronged strategy to diversify import sources, grow locally and grow overseas. This issue's cover story, "Feeding the Future" (pages 3 to 5) examines this strategy in greater detail and sheds light on how these three principles help the country buttress its food security.

These principles converge in the ambitious '30 by 30' goal: to build our agri-food industry's capability and capacity to produce 30 per cent of our nutritional needs sustainably by the year 2030. Ms Deborah Koh of SFA has taken up this challenge and leads a team overseeing the rollout of this plan. We spoke to her about the lessons she has learnt and her achievements on pages 6 and 7.

Central to the '30 by 30' goal are efforts to boost local food production. In this issue, we meet two Singaporeans who have taken up the challenge of urban farming. Learn more about their thoughts on encouraging younger generations to get their hands dirty through farming on pages 8 and 9.

However, all these efforts would mean little if the food is not safe for consumption. SFA works closely with its global partners to ensure food safety in other countries as well. The SFA's scientific body, the National Centre for Food Science, supports World Health Organization (WHO)'s food safety initiatives in the Western Pacific region as one of two WHO Collaborating Centres for Food Contamination Monitoring. Read more about this in our latest Joining Hands story (pages 10 to 11). We hope that you will enjoy this issue's foray into Singapore's food journey!

*Sheryl Shum*

**Director  
Strategic Communications Directorate  
Ministry of Foreign Affairs, Singapore**

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## experience SINGAPORE

A NEWSLETTER OF THE  
SINGAPORE COOPERATION  
PROGRAMME



MINISTRY OF FOREIGN AFFAIRS  
SINGAPORE

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focus

# FEEDING THE FUTURE

How Singapore has ensured its food security – and continues to do so.

**Food holds a unique place** in the hearts of Singaporeans. Few things unite and excite the population as much as conversations about culinary delights of all kinds: from humble hawker fare to fine dining. For such a food-obsessed nation, it is only natural that people care about how well certain dishes or eateries rate on cuisine-related lists like the Michelin guides.

The importance of Singapore Food Agency (SFA)'s mission came under the spotlight recently, after the Malaysian government announced plans to temporarily halt the export of chickens to ensure supply for its domestic market. This initially prompted a wave of concern among Singaporeans, who count dishes like chicken rice and chicken curry as national favourites. However, the authorities swiftly stepped in to dispel concerns on the availability of chicken by pointing out the country's preparedness in such situations. "The answer is not what we do now, but what we have already been doing for several years, which has been to build up our buffer stocks and resiliency, and diversify our sources," said Prime Minister Lee Hsien Loong. "So that (when) any single source is interrupted, we are not unduly affected, and if you can't buy chicken from one place, you can buy from other countries. This time it is chicken, next time it may be something else. We have to be prepared for this."

The success of this extensive preparation was demonstrated when NTUC FairPrice, the country's largest supermarket chain, said that it had a stockpile of frozen chicken that could last for about four months. Another two months of

supply are on the way, added Ms Elaine Heng, FairPrice Group's Deputy Group Chief Executive Officer. As Mr Lee alluded to in his statement, Singapore's strategy to ensure food security involves a three-pronged approach: diversifying import sources, growing locally and growing overseas — each done in a uniquely Singaporean way.

## STRENGTH IN DIVERSITY

"Don't put all your eggs in one basket," goes the adage. In Singapore, this mantra is taken quite literally: diversification is a key tenet of the Republic's food policy. Over the years, shoppers at supermarkets in the country have been greeted by a growing variety of products that hail from all corners of the world: Singapore has increased its food supply sources and is now importing from more than 170 countries and regions. Take hen shell eggs, for instance. Singaporeans have a strong liking for these protein-rich goodies, with an annual per capita consumption of these eggs steadily rising from 307 in 2011 to 390 in 2021. That amounts to almost 2.1 billion hen shell eggs in 2021. To feed this healthy demand, SFA imports about half of local demand from Malaysia, while some 30 per cent is met by Singapore's three hen shell egg farms. A small percentage also comes from countries around the world: Australia, Thailand and Poland to name a few.

Although these countries represent a tiny fraction of imports, global egg producers play an important role in shoring up Singapore's food security. The presence of geographically-varied sources of food ensures that the country's food supply is not adversely affected by challenges



EGGS IN SINGAPORE COME FROM LOCAL FARMS, AS WELL AS COUNTRIES LIKE AUSTRALIA, MALAYSIA AND POLAND, AMONG OTHERS.

such as climate change, pandemics and geopolitical events. For example, an outbreak of bird flu in Southeast Asia could have catastrophic effects on our egg supply if the region was Singapore's sole source of eggs. However, our warm links with multiple sources from diverse parts of the world allow Singapore to quickly pivot and ensure a continued supply. These actions to ensure business continuity not only reduces our reliance on any one source but makes the industry more resilient.

## GROW LOCAL

Singapore currently imports more than 90 per cent of the food we consume. With limited resources and space constraints, "Grow Local" can be a challenge to accomplish, but SFA is up for it. The agency has set itself the ambitious '30 by 30' goal: in essence, it aims to build our agri-food industry's capability and capacity to produce 30 per cent of Singapore's nutritional



PHOTOS: SINGAPORE FOOD AGENCY

● MORE FARMS ARE ADOPTING TECHNOLOGY AND INNOVATIVE SYSTEMS TO GROW MORE LOCAL PRODUCE.

needs sustainably by the year 2030. Growing locally would reduce our reliance on imports and mitigate the impact of overseas supply disruption.

To enable the industry to innovate and enhance productivity and sustainability, SFA has put in place schemes to support R&D and technology adoption. SFA launched a \$60 million Agri-Food Cluster Transformation (ACT) Fund last year to support the agri-food sector's transformation into one that is highly productive, climate-resilient and resource-efficient. The ACT fund was further enhanced this year to extend the higher co-funding quantum of 70 per cent or up to \$6 million to a wider range of food types such as fruited vegetables, mushrooms and shrimp. Under the Singapore Food Story R&D Programme, up to \$144 million has been set aside for R&D

for sustainable urban food production, future foods such as advanced biotech-based protein production, as well as food safety science and innovation. To date, over \$23 million in funding has been awarded for R&D in sustainable urban food production. Stressing the importance of such funding, Minister for Sustainability and the Environment Ms Grace Fu said, "R&D holds the key to the future of food, as we tackle challenges like climate change and dwindling resources. These grants will address challenges facing tropical aquaculture and urban agriculture to further develop our capability to sustainably grow more with less."

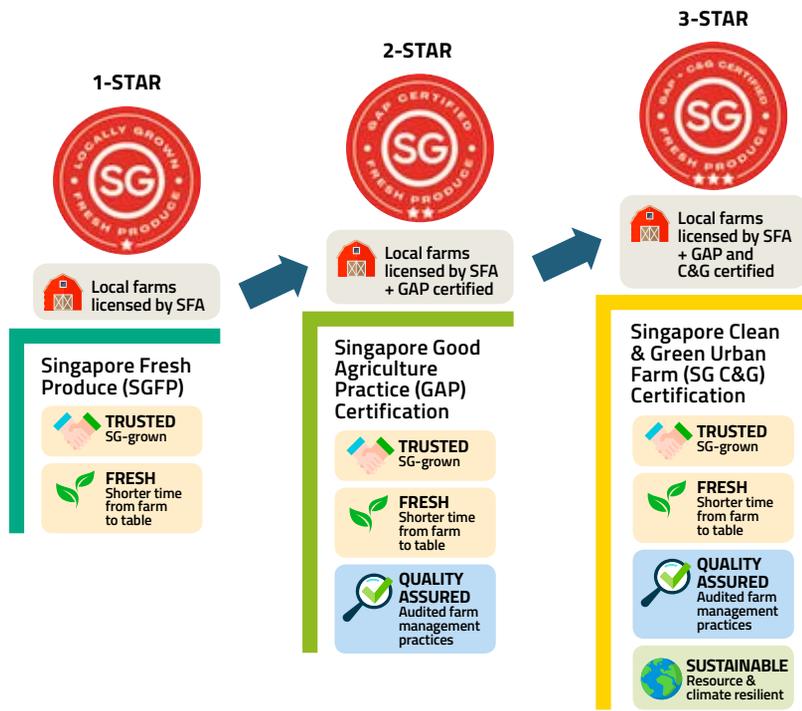
Beyond supporting technology adoption and R&D work, SFA is masterplanning Lim Chu Kang, an area in the northwest of the country,

with the input of local farmers. The goal is to create a high-tech agri-food zone that can raise food production in a sustainable and resource-efficient manner. "Through master planning Lim Chu Kang, we can re-parcel existing plots to optimise land use, develop infrastructure to support productive farming, and establish shared facilities such as waste treatment plants or packing facilities to enable farms to reap economies of scale," explained Ms Fu. She continued, "We also want to introduce circular economy principles, such that where possible, the by-products of farms can be used as inputs for other parts of the agri-food ecosystem. Farms that are involved in upstream or downstream activities from one another can be located close by to benefit from a common ecosystem and shared services."

SFA is also on the ground with dedicated account managers tagged to farms, to guide and advise them on areas such as technology adoption and business development. These efforts have started to bear fruit: the local production of eggs alone has increased by more than 7 per cent year-on-year and will be boosted by the development of a fourth hen shell egg farm, which will be operational from 2024. From then, local farms will have the capability and capacity to produce about half of Singapore's demand for hen shell eggs.



● THE SINGAPORE FOOD AGENCY ADVISES LOCAL FARMS ON AREAS LIKE TECH ADOPTION AND BUSINESS DEVELOPMENT. PICTURED IS A LOCAL FISH FARM.



THESE BADGES HELP CONSUMERS TO EASILY IDENTIFY LOCAL PRODUCE, ENCOURAGING THEM TO SUPPORT LOCAL FARM BUSINESSES TO BOOST SINGAPORE'S SELF-SUFFICIENCY AND FOOD SECURITY.

The agency also works closely with the farming industry to brand and market domestically-grown produce by highlighting its merits. In this vein, SFA has rolled out a series of badges, namely the Singapore Fresh Produce (SGFP) badge, Good Agricultural Practice (GAP) certification badge and Clean & Green Urban Farm (C&G) certification badge.

### GROWING OVERSEAS

In addition to helping local farms make inroads into the Singapore market, SFA and other government agencies, like Enterprise Singapore, support their international growth and expansion. This strategy offers two benefits: first, it allows these companies to expand and grow overseas. Second, it also enables companies to export urban food solutions

developed in Singapore and build strategic relations with key partners.

Going overseas allows local farms to reap economies of scale and grow commercially. To date, local farms have already ventured into Australia and Brunei (Barramundi Group), Hong Kong (Sustenir), and Thailand and China (Sky Greens).

### A RISK-BASED APPROACH TO FOOD SAFETY

Beyond ensuring the resilience of our food supply, food safety is one of SFA's key considerations. Singapore adopts a risk-based approach to food safety. First, higher-risk products, such as meat and eggs, can only be imported from accredited sources to ensure imports meet our safety standards. Second, imports, local farms and food establishments are monitored through licensing, inspection and testing regimes. The number of food-borne illness cases in Singapore has been successfully kept low, with no more than 26 cases per 100,000 population annually over the past three years.<sup>2</sup>

That said, food safety is ultimately a joint responsibility. The industry must meet Singapore's food safety requirements and adopt good agricultural or manufacturing practices to ensure that its products are safe for consumption. Consumers too can play a role by making informed decisions when purchasing food and adopting good food safety practices.

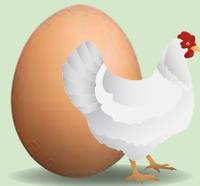
## FOOD FOR THOUGHT

Key facts and figures from Singapore's food industry:

- The number of licensed local food farms increased from 221 in 2019 to **260** in 2021.



- Around **one in three eggs** consumed in 2021 was locally produced.



- In 2021, major sources of supply for commonly-consumed food items include:



Malaysia – contributes **42%** of vegetables supply



Vietnam – provides **15%** of seafood supply



Australia – whose imports make up **10%** of meat supply

- As of 2021, there were **51,809** licensed food establishments in Singapore.



- 72,685** food samples were collected in 2021 to identify potential food safety lapses. Regulatory samples from produce and livestock are collected from farms and slaughterhouses and then sent for laboratory testing at the National Centre for Food Science.



SOURCE: SINGAPORE FOOD AGENCY

● A SCIENTIST FROM THE NATIONAL CENTRE FOR FOOD SCIENCE AT WORK.



2 <https://www.sfa.gov.sg/docs/default-source/publication/sg-food-statistics/singapore-food-statistics-2021.pdf> (Page 22)



MAIN PHOTO: KELVIN CHIA; OTHER PHOTOS: SINGAPORE FOOD AGENCY, SHUTTERSTOCK

reflections

# THE 3030 GOAL

Ms Deborah Koh of the Singapore Food Agency is leading the charge to improve Singapore's food sustainability before the decade's end.

**Given her role** as the Director of the Singapore Food Agency (SFA)'s 3030 Planning & Development team, it is no wonder that food security is often on Ms Deborah Koh's mind. Her team is responsible for the strategisation and implementation of Singapore's 30 by 30 plan, which aims to build our agri-food industry's capability and capacity to produce 30 per cent of Singapore's nutritional needs sustainably by the year 2030.

When asked about the importance of the plan, Ms Koh outlines the numerous challenges that could impact Singapore's food supply. These include climate change, global population growth and the consequent soaring demand for food, as well as geopolitical uncertainties potentially resulting in export bans on key foodstuff. "While we cannot control these challenges, Singapore adopts a multi-pronged strategy to strengthen our food security, such as import diversification and local production," she explains. Ms Koh adds, "Although import source diversification has served us well, the supply chain disruptions brought about by COVID-19 underscore the importance

of local production." She recalls how the Jurong Fishery Port, a key node for seafood imports into Singapore, had to be temporarily closed due to an outbreak of COVID-19 among its workers. "This meant that there was a temporary disruption in the supply of fish, as companies had to reroute their imports to other locations," she recalls. "During this period, the supply of fish from our local farms remained stable and farms kept production going to meet the significantly increased demand."

These incidents have reaffirmed Ms Koh and her team's commitment to increasing local food production. However, she has encountered critics who do not believe that Singapore can grow nearly enough food, seeing as it has set aside just 1 per cent of its land area for farming. Ms Koh says that growing the *right* type of food in land-scarce Singapore makes all the difference. "For example, rice, wheat, lamb and beef require large spaces that Singapore does not have, and hence cannot be farmed in small spaces or vertical farms. However, there are food types that can be produced locally in a resource-efficient

and commercially sustainable manner," she says, listing eggs, fish, and leafy and fruited vegetables as viable examples.

Singapore's current farming landscape does reflect Ms Koh's words: the Republic is home to around 260 farms that produce food. Over a hundred of these farms grow

PROVIDING TECHNICAL ASSISTANCE ON THE DEVELOPMENT OF THE GROUPEE HATCHERY PROTOCOL FOR A TANK-BASED SYSTEM AT A LOCAL HATCHERY.



vegetables such as *cai xin*, spinach and kale. A further 130 farms rear fishes like grouper, seabass and tilapia. Ms Koh adds, "There is an increase in the number of high-tech indoor farms, as well as close containment fish farms anchored off the mainland. These farms are considered to be climate-resilient as they are not exposed to the elements."

## LEARNING LESSONS

As a globally-connected economy with no natural resources, Singapore is vulnerable to both external shocks and supply disruptions, even when they affect countries that are not key sources of its food.

Take the crisis in Ukraine, for example. "Both Russia and Ukraine are not key import sources for Singapore's food supply. The volume of food imported from the two countries — be it sugar, flour, eggs or cooking oil — has been low and contributes to less than 1 per cent (of Singapore's food supply)," shares Ms Koh. "But given that both are major food producers, there is inevitably an impact on Singapore. The global supply of raw materials, animal feed, fertiliser and even finished food products has been directly or indirectly affected by supply chain disruptions due to the Russia-Ukraine conflict, and other events such as the 2021 Suez Canal blockage. With the increase in prices of essential food items globally, some countries have responded with measures such as price controls and export bans."

Challenges to global food supply can also hamper efforts to grow food locally. For example, the pandemic slowed down the setting up of new farms and the upgrading of existing farms in Singapore. "Nevertheless, SFA has been working closely with the affected farms to (help them) catch up with their project schedules," explains Ms Koh.



HYDROPONIC VERTICAL FARMING TECHNOLOGY IN SINGAPORE.

## TO THE FUTURE

As Singapore ramps up its local food supply, it is also working hard to promote locally-grown food to its people. "Support for local produce helps the business of our local farmers and spurs them to become more productive," says Ms Koh. On this front, SFA rallies citizens to support local produce, easily identifiable through the SG Fresh Produce logo. "We also work with farm associations and retailers to promote local produce in-stores, online or at farmers' markets," she adds.

Ensuring food safety is another key area of work for SFA. To further assure consumers of the quality of local produce, Ms Koh and her team encourage local farms to adopt the code of Good Agricultural Practice, a quality assurance scheme. "Under this certification scheme, the Singapore Standard was developed in 2021 to guide local farms on a holistic approach of farm management in the areas of food safety, produce quality, environmental management, and workers' health, safety and welfare," says Ms Koh.

Each of these areas plays a role in helping Singapore work towards its '30 by 30' goal. "The goal was announced in 2019 and is still in its early stages of development," she says. "There is a lot of work to be done. We need to significantly transform the agri-food sector and this will take time." She concludes, "We will continuously review our '30 by 30' plans to keep up with technological advances and climate change to ensure we still meet our objectives of growing capabilities and capacities."



## A PIPELINE OF TALENT

Agri-food is a new growth high-tech sector requiring talent in agriculture and aquaculture sciences, engineering and info-comm technology. Here is how Singapore's doing it:

- An "Attract, Emplace and Retain" strategy was implemented to grow and nurture a sustainable pipeline of local talent in the agri-food sector. Since 2017, more than **100** students were matched to our local farms to gain work experience leading to their first employment.
- SFA also worked with Institutes of Higher Learning (IHLs) on Career Conversation Programmes to facilitate the reskilling of job seekers and transitioning them to a new career in the agri-food sector. In addition, training programmes are also available to upskill existing workers in the industry for career progression and retention. In 2021, more than **500** individuals underwent these programmes.



ORANGE-SPOTTED GROUPER (EPINEPHELUS COIOIDES).





PHOTO: AIK CHEN

in singapore

Christopher  
Leow  
URBAN FARMER

# GROWING FROM THE GROUND-UP

A grassroots approach to growing food is one way of increasing local production, suggests this urban farmer.

Food has always been a bit of an obsession for Mr Christopher Leow: not just eating it but also learning all about what is on his plate. In fact, at the age of 26, he was so inspired to discover the roots of his daily meals that he embarked on a round-the-world journey to understand where different foods come from. That trip included a stay at The Earthkeepers, a wholly self-sufficient farm in New South Wales, Australia. "It was a moment of epiphany," recalls Mr Leow, now 35. "I saw how we could live a truly productive and meaningful life by relying on ourselves to grow food and harvest energy and water. That experience inspired me to try to achieve that vision here in Singapore by setting up farms that utilise elements of energy, water and waste recycling."

The result is Nutopia, a community garden that sits atop a multi-storey car park in a neighbourhood in central Singapore. He calls it an "open-concept community garden." "It is a way of growing food for the community," he adds. "I'm proud that it's ungated, and anyone is free to come and join in the harvest." When *Experience Singapore* visited the site on a sunny June morning, several

older residents were seen crouching over a bed of watercress, evidently eager to harvest it.

## EDIBLE AND ACCESSIBLE

Through ventures like Nutopia, Mr Leow also hopes to raise awareness of the abundance of edibles in Singapore's natural environment, going beyond fruit and vegetables. "Many orchid varieties are edible," he says, citing an example. "There are also plants that people consider weeds which can actually be eaten, such as Shiny Bush (*Peperomia pellucida*)."

Nutopia is a self-sufficient affair, which Mr Leow believes helps it to sidestep common challenges faced by commercial urban farms. "For urban farms to be commercially viable, many stars have to be aligned. The current business model for many farms requires high capital investment and operating costs," he reflects. "These ventures are high-risk as they still depend on imported inputs like energy, water, fertilisers and seeds. With the recent geopolitical shake-ups and climate change issues, the risk to the cost and supply of raw materials will only increase."

To lower costs and risk, Mr Leow advocates self-sufficiency. The Singapore Government also encourages this through its Gardening with Edibles programme. Launched in 2020, it provides everyday Singaporeans with packets of seeds to grow edibles in their homes or at community gardens. Some 860,000 such packets have since been distributed.

Another way of mitigating cost and risk is by being resourceful, adds Mr Leow. "Growing drought-tolerant crops such as moringa that have adapted to the environment is one way of mitigating risk." In turn, he suggests "turning waste into fertiliser" to lower costs. Composting food scraps is one way of doing this. Such tips — coupled with policies like the Gardening with Edibles programme — could help move the needle on local food production in Singapore, says Mr Leow. "I envisage Singapore following the steps of Cuba, where urban farming has contributed up to 90 per cent of its fruit and vegetable supply."

## HOME GROWING TAKES ROOT

To encourage home gardening of edibles, the National Parks Board distributed free seed packets to households that expressed interest. Each eligible household received:

- A packet containing seeds of one species of leafy vegetable
- A concise guide on how to grow these vegetables

One plant enthusiast told *The Straits Times* newspaper, "I have green fingers, so I've always enjoyed gardening and having home-grown vegetables for dinner."



Samantha  
Chin  
FARM MANAGER,  
COMCROP



# A GROWING OPPORTUNITY

Farmers in Singapore are not just planning for their next harvest; they are also thinking about the future of the profession.

Farming may not seem like a conventional career path for millennials, and yet there was something about it that called out to Ms Samantha Chin. The year was 2013, and Ms Chin was 25 at the time. She was an employee at a French restaurant in Singapore, where she got to work with fresh produce supplied directly from farms. Through her job, she came across ComCrop, a local farming collective that was pioneering the use of urban spaces like rooftops for farming.

"What ComCrop was doing caught my attention," recalls Ms Chin, now 34. "I decided to join them, first as an intern, then as a part-timer, to both help out on the farms and also learn the mechanics of running a hydroponic urban rooftop farm." The mechanics are quite simple, as *Experience Singapore* discovers. Plants, such as basil, mint, eggplant and pepper, are grown from 5m-high vertical frames. The frames are fitted with pipes, which hold water that has been run through large tanks of tilapia fish. Waste from the fish adds nutrients to the water, allowing the plants to thrive.

Ms Chin and her team share such innovations with schools through regular tours, in the hope of encouraging a pipeline of future farmers. She says, "Through education, the perception of farming can be changed. Beyond thinking of farming as a technology-based industry, I hope we can be seen as professionals who perform difficult and sometimes dirty work — much like

teachers, healthcare workers or hawkers. The importance of our work should not simply be measured by the value of our products, but by our contributions to society."

She hopes that such a shift will encourage more people to consider farming as a viable career option, in spite of mainstream attitudes towards the industry. Recalling her own experience of telling her loved ones about her career choice, she says, "My family was concerned at first as it was an unconventional career path, and they were not sure if there was a future for me in it. They were concerned about the financial aspect and my physical well-being in the long run as it was going to be tough and challenging." The COVID-19 pandemic was a turning point. "It made them realise the importance of growing our own food, and (they) decided that it was a good industry to be in." She hopes that with an increasing awareness of the need to grow local, more will become receptive to a career in farming.

While mindsets about the farming industry may be slowly changing, attitudes towards local produce are still far from ideal, adds Ms Chin. Consumers, who are already facing higher prices for everything from food to fuel, often question why they should fork out more for local produce. However, Ms Chin hopes that customers will realise the extra money they pay goes a long way towards ensuring the freshness of their produce — and the viability of Singapore's agricultural sector.

## A MESSAGE TO THE YOUTH



"To younger people looking to be a part of urban farming or the agriculture industry: first educate yourselves by visiting existing farms to better understand the industry. An awareness of its challenges and potential will help you manage your expectations and decide on the role you want to play."

Ms Samantha Chin

joining hands

# SECURING SAFETY AND STANDARDS FOR ALL

How close partnerships are driving Singapore's efforts to maintain food safety, both at home and globally.



## As food can be contaminated

anywhere along the supply chain, ensuring food safety requires a coordinated effort among international food safety authorities, industries and government agencies, as well as regional and international organisations.

The task of ensuring food safety continues to face emerging challenges, such as technological advancements in food production and processing, climate and environmental changes that could lead to emergence of new bacteria, toxins or antibiotic resistance, and more frequent or larger-scale outbreaks of food-borne illnesses. To keep up with these challenges, the Singapore Food Agency (SFA) works with key stakeholders to oversee the food supply chain from farm to fork.

## BEHIND THE SCENES

SFA has in place an integrated food safety system — that oversees production to processing

to distribution — to ensure food is safe for consumption. This comprises control measures along the food supply chain such as:

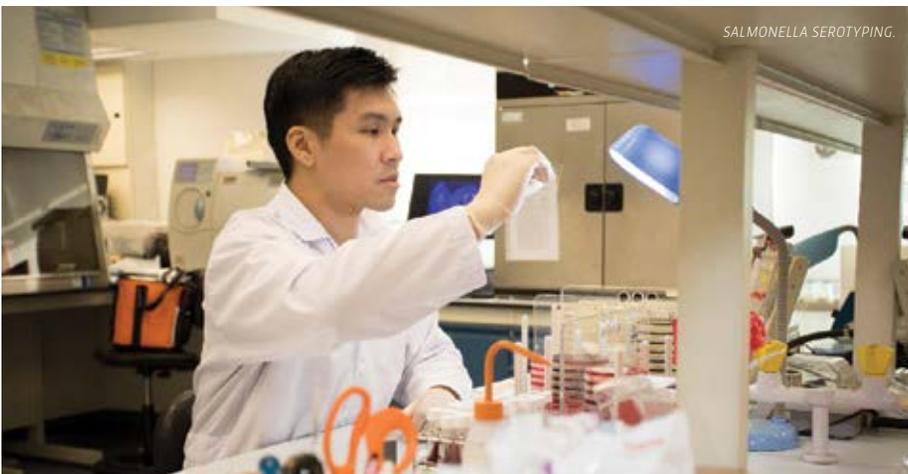
- Ensuring regulations are up to date and aligned with international standards
- Accrediting overseas sources of food of higher risks
- Ensuring import requirements are met through inspection and testing
- Regulating local slaughterhouses, processing plants, food factories, farms and retail establishments
- Conducting horizon scanning for early alert on overseas food safety incidents and disease outbreaks
- Industry and public outreach to raise awareness on stakeholders' responsibilities and good food safety practices ensure food safety is a joint effort

To implement these control measures, SFA relies on its scientific arm, the National Centre for Food Science (NCFS). NCFS leverages multi-disciplinary capabilities such as in-depth applied research, risk assessment, data analytics and state-of-the-art equipment for food safety monitoring and diagnosis to protect public health.

SFA also maintains close ties with the international food safety scientific and regulatory communities, actively participating in bilateral, regional and international collaborations to safeguard and advance its interests, and to contribute to regional and international research and development in food security and safety. In 2013, Singapore joined the Food and Agriculture Organization (FAO) of the United Nations and, in 2015, signed its first agreement to cooperate on a wide range of issues, including food safety, combatting antimicrobial resistance and urban food solutions through knowledge exchanges, technical consultations and capacity-building.

In 2021, SFA's Food Safety Monitoring and Forensics Department under NCFS was designated as a World Health Organization (WHO) Collaborating Centre for Food Contamination Monitoring from 2020 to 2024. As one of two such centres in the world, NCFS leverages its expertise in areas such as food-borne pathogens, contaminants and toxins to support WHO's food safety initiatives in the Western Pacific region. It provides technical assistance and food testing services and contributes monitoring data on contaminants and natural toxins in food. "This designation is a testament to NCFS's food testing and research capabilities, which are critical in supporting our

SALMONELLA SEROTYPING.





AN NCFS OFFICER CHECKING FRESH FRUITS AND VEGETABLES AS PART OF REGULATORY SURVEILLANCE PROTOCOLS FOR CHEMICAL CONTAMINANTS.

mission to ensure and secure a supply of safe food for Singapore. We recognise the importance of close collaboration with international bodies and other food safety agencies, as food safety assurance is a global objective. We are pleased to support WHO as a regional knowledge and technical resource centre," said Dr Tan Lee Kim, Director-General (Food Administration) and Deputy Chief Executive Officer of SFA.

Given the continuous advancement of science and technology, and emerging threats to food safety, NCFS works with local and international experts to sharpen its scientific and technological capabilities. Leveraging cutting-edge scientific and technological innovations also allows NCFS to operate more efficiently and effectively, as well as be better prepared for challenges ahead. With regard to laboratory capabilities, NCFS continually enhances its ways of detecting emerging food hazards. For example, NCFS developed a multi-technique-based analytical method for the detection and characterisation of microplastics in food and water. NCFS has also enhanced its risk detection capabilities using risk analysis and data science.

To effectively leverage cutting-edge scientific and technological developments, NCFS collaborates with partners around the world. These collaborations facilitate the exchange of ideas and expertise, which strengthens mutual capabilities. To benchmark its testing capabilities with other international peer laboratories, NCFS participates in several international proficiency testing programmes organised by providers from the United

Kingdom, United States, European Union, Australia, New Zealand and the Netherlands.

## SETTING STANDARDS

A key aspect of safeguarding food safety is the setting of food and safety standards necessary for the trade of food products. Robust food safety standards are especially critical for countries such as Singapore, which imports most of its food. These standards ensure that all of the country's food imports from a wide range of countries are produced and processed in line with similar standards. Hence, the adoption of these standards by countries that act as Singapore's food sources contributes to maintaining high food safety standards.

Beyond setting domestic food safety standards, SFA contributes to the Codex Alimentarius Commission, or Codex. The Codex is an international food standard-setting body that aims to protect consumers' health and ensure fair practices in the food trade. It establishes definitions and requirements for foods to facilitate harmonisation across countries, which in turn facilitates international food trade. In providing data monitoring on levels of emerging chemical contaminants and natural toxins in food, SFA contributes to the setting of international food standards, which enhances food safety and food trade for the global community.



ATTENDEES OF THE FAO-BAFRA WEBINAR, BHUTAN NATIONAL HYBRID WORKSHOP ON RISK CATEGORIZATION FOR IMPORTED FOOD CONTROL: CASE STUDIES FROM SINGAPORE, WHICH WAS HELD FROM 30 SEPTEMBER TO 2 OCTOBER 2020.



A VIRTUALLY-HELD INTRODUCTORY TRAINING COURSE ON RISK ANALYSIS FOR ANTIMICROBIAL RESISTANCE (AMR) ARISING FROM THE USE OF ANTIMICROBIAL AGENTS IN AQUACULTURE THAT WAS CONDUCTED FROM 1 TO 3 FEBRUARY 2021.



## THREE MOST COMMON THREATS TO FOOD SAFETY

- 1 Microbial contamination of foods:** The most common form of microbes are bacteria, viruses and fungi. While some microbes are important for our health, others can make us sick. Hence, it is critical to ensure that our foods do not contain harmful microbes.
- 2 Chemical contamination of foods:** While chemicals and additives can be used in food production, the type and the levels used must be in accordance with food safety standards.
- 3 Mislabelling of foods.** Product labels are meant to inform consumers of the ingredients and nutritional content of foods. Incorrectly-labelled food products mislead consumers and could potentially trigger allergies and other adverse health effects.

A NEWSLETTER OF THE  
SINGAPORE COOPERATION PROGRAMME

## SAFE FROM HARM

In 2020, Singapore Food Agency (SFA)'s National Centre for Food Science (NCFS) performed more than 250,000 laboratory tests to ensure food safety and protect public health.



joining hands

In 2021, the Food Safety Monitoring and Forensics Department under NCFS was designated as a World Health Organization Collaborating Centre for Food Contamination Monitoring from 2020 to 2024. NCFS leverages its expertise in food-borne pathogens and toxins to support WHO's food safety initiatives in the Western Pacific region.