



SAFETY. SECURITY.

OUR BREAD & BUTTER

VISION

SAFE FOOD FOR ALL

MISSION

TO ENSURE AND SECURE
A SUPPLY OF SAFE FOOD

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AWARDS AND ACCOLADES

Workplace Partnership Award (Platinum) 2019

- Received from Ong Teng Cheong Labour Leadership (OTC) Institute

Public Sector Pro-Enterprise Initiative Award 2019

- Received from Pro-Enterprise Panel-Singapore Business Federation Awards for the "Pro Enterprise business model to seed commercial urban farms in HDB heartlands"

ISO/IEC 17025 SAC-SINGLAS Accreditation

- Received by National Centre for Food Science (NCFS) since 2000, with 14 new tests accredited in FY2019

World Health Organisation Collaborating Centre for Food Contamination Monitoring

- Designation received by NCFS since 1992

World Organisation for Animal Health (OIE) Collaborating Centre for Food Safety

- Designation received by NCFS since May 2014

ASEAN Reference Laboratory for Mycotoxins

- Designation received by NCFS since 2004

ASEAN Reference Laboratory for Pesticide Residues

- Designation received by NCFS since 2004

ASEAN Reference Laboratory for Environmental Contaminants

- Designation received by NCFS since 2014

ASEAN Reference Laboratory for Marine Biotoxins and Scrombotoxin

- Designation received by NCFS since 2019

Ministerial awards

Ministry of National Development (MND)

Minister's Awards (Team) 2019 for:

- "Enabling Commercial Urban Farms in the Heartlands through a Forward-looking HDB-SFA (AVA) Model"
- "Formation of the New Singapore Food Agency (SFA) and Transfer of AVA's Non-food Functions to National Parks Board"

Ministry of Home Affairs (MHA)

Minister Excellence Award 2019 for:

- "Protecting Singapore's Waters Off Tuas"
- "Jurong Fishery Port's Joint Security Review"
- "Horticulture Waste Fire"

Ministry of the Environment and Water Resources (MEWR)

- Minister Award for Excellent Service 2020 – individual awards for Mr Alfred Tan Cheng Peng and Mr Lim Yee Liang
- Minister Award for Excellent Service 2020 – Team award for the "Laboratory Recognition Programme"
- Minister Special Commendation Award 2020 for "Geylang Hari Raya Bazaar 2019"
- Exemplary Leader Award (Director) 2020 for Mr Chow Wing Chung, Melvin
- Exemplary Leader Award (Manager) 2020 for Dr Wong Yelin
- One Public Service Award 2020 for "Ensuring Food Safety, Animal Welfare and Meeting Community Needs for Korban"
- Regulatory Excellence Award 2020 for "Facilitating Farm Development through Inter-agency Regulations Workgroup"
- Citizen Engagement Award 2020 for "Commercial Urban Farming in the Heartlands" and "Visioning for SFA Involving Cross-industry Stakeholders"
- Innovative Spirit Award 2020 for "Using AI to Count Rotifers, Speeding Up Laboratory Work Processes"
- Dare to Do Award 2020 for "Marine Aquaculture Centre – Acquiring New Competencies to Address Challenges"

MESSAGE FROM THE CHAIRMAN.



Left to right: SFA Chairman Mr Lim Chuan Poh, Senior Minister of State for Health and the Environment & Water Resources Dr Amy Khor, Minister for the Environment & Water Resources Mr Masagos Zulkifli, Permanent Secretary for the Environment & Water Resources Mr Albert Chua, and SFA CEO Mr Lim Kok Thai.

2019 marks the inauguration of a new statutory board, Singapore Food Agency (SFA), under the Ministry of Sustainability and the Environment (MSE). This signals the Government's commitment to strengthen food security and safety from farm to fork by consolidating all the food-related expertise from the then-Agri-food and Veterinary Authority (AVA), National Environment Agency (NEA), and Health Sciences Authority (HSA) into a single entity.

The Economist Intelligence Unit (EIU)'s Global Food Security Index (GFSI) has consistently ranked Singapore within the top five countries over the past five years. In fact, we have been ranked first in the last two years. This can be largely attributed to our high GDP per capita and reflects our ability to purchase safe, quality food from overseas. However, Singapore, being a net importer, is vulnerable to external shocks and global trends that impact food supply around the world. Food security is an existential issue for Singapore, as it is for other countries, and should never be taken for granted. Thus, we are continually reviewing our strategies to ensure and secure a supply of safe food for Singapore.

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Securing our food supply

SFA ensures and secures a supply of safe food through three strategies, our “three food baskets” – diversify import sources; raise local production; and encourage firms to grow food overseas. Amidst the ongoing global outbreak of COVID-19 where food production has been severely impacted, resulting in flows of food supplies being re-prioritised by food-exporting countries to serve their own markets first, our food security strategies are being put to the test.

Diversifying import sources

Import source diversification helps us to reduce our reliance on any single source for any particular food item. Today, our food sources are diversified over 170 countries and regions. To further augment this diversification strategy, in 2019, SFA introduced a new import licensing condition that requires our egg importers to adopt business continuity plans to mitigate the impact of supply disruptions. SFA also put in place a regulatory framework for the import of pasteurised shell eggs, as well as approved the import of free-range eggs from Australia, New Zealand, and Denmark. Such initiatives open more egg sources, as farms that might not be Salmonella-free or free-range layer farms can now export to Singapore as long as they adhere to our biosecurity requirements.



Raising local production

Although import source diversification has served us well, COVID-19 underscores the importance of having a buffer in case of global supply disruptions. Raising local production further will reduce our reliance on food imports.

Our goal is to produce 30 percent of Singapore’s nutritional needs by 2030 locally, up from less than 10 percent today. As a small country with limited space, our land use faces many competing needs. With such severe space constraints, the “30-by-30” goal is highly ambitious. Technology advancements will be key in unlocking the

potential for us to ‘grow more with less’, in a sustainable manner. For instance, it is now possible to produce 10 to 15 times the yield per hectare of vegetables compared to traditional outdoor soil-based farming.

Since 2017, SFA has been awarding agriculture land through a competitive land tender basis to agri-food companies with promising technologies. One such company is LivFresh, a vegetable farm. The farm uses modern greenhouse growing techniques, which mitigate the impact of unfavourable weather conditions and can produce up to six times more vegetables than traditional soil-based farming. Moving forward, SFA will study how the larger Lim Chu Kang agriculture area can be planned and redeveloped to enhance our food production to achieve our “30-by-30” goal. This includes looking at centralised facilities and services to achieve economies of scale and introducing circular economy principles for resource efficiency at systems level.

Over the past five years, SFA has committed \$38 million from Agriculture Productivity Fund (APF) to support more than 100 agriculture and aquaculture farms in their productivity-enhancement investments and this incentive will be extended until the end of 2020. Given our land constraint, we should also transform farming at sea to make practices much more productive, sustainable, and climate-resilient through technological innovations. One example is the Aquaculture Centre of Excellence Pte. Ltd. (ACE), which received funding support from the APF and developed a purpose-built closed containment floating farm, known as Eco-Ark, officially commissioned in November 2019. It combines Offshore & Marine Technology with Recirculating Aquaculture System that allows it to filter and treat seawater, kill pathogens, and reduce the vulnerability of fish to external seawater conditions.

Besides the use of technology, SFA is also studying the expansion of sustainable fish farming in the deeper southern waters of Singapore. The study includes consultations with our stakeholders to ensure that aquaculture can become a major part of local production and to create opportunities for the industry to



grow further. This is also in line with the developments globally where the amount of farmed fish has already exceeded caught fish a few years ago.

To further advance sustainable aquaculture and anchor strategic capabilities in Singapore, SFA also invested in Research and Development (R&D) in areas such as the establishment of a feed trial facility at its Marine Aquaculture Centre (MAC). The facility, together with MAC’s other shared R&D facilities (tank systems and incubator spaces, amongst others) will also generate indirect economic benefits such as enterprise research investment and employment. Adisseo, one of the world’s leading feed additives companies, is one such company that has recently set up its aquaculture research station at MAC last year. This is their first research station in the Southeast Asian region.

R&D will continue to play a key role to drive innovation and plug existing technological gaps. To support our “30-by-30” goal, we developed the Singapore Food Story R&D programme, and the Government has allocated \$144 million towards the programme from its Research, Innovation and Enterprise 2020 (RIE2020) plan. In December 2019, SFA and A*STAR launched grant calls to fund innovative research projects in two themes (i) ‘Sustainable Urban Food Solutions’, and (ii) ‘Future Foods: Alternative Proteins’. Both calls received very good response. The proposals will be evaluated, and awards given out in the coming year.

Agri-food is a new growth sector that will provide new jobs and exciting career opportunities. This sector will require a pool of talents in agriculture and aquaculture technologies, with in-depth understanding of urban farming processes and business models, and expertise in areas including engineering, Industry 4.0 technology, and entrepreneurship. They will form the core of our local high-tech agri-food ecosystem and lead the way in accelerating the development and adoption of new technologies and innovations to transform the agri-food sector in Singapore.

To build this talent pool, we put in place an “Attract, Emplace and Retain” strategy. On attracting students to pursue a career in the agri-food sector, SFA continued to work with Institutes of Higher Learning and farms to provide structured internships. In 2019, 21 students were matched to 11 farms. SFA also collaborated with Republic Polytechnic (RP) to launch a new part-time Diploma in Applied Science in Urban Agricultural Technology. More than 60 adult learners enrolled in this new part-time diploma to upgrade their knowledge. Amongst these students were six fresh Institute of Technical Education (ITE) graduates participating under the SkillsFuture Work-Study initiative. The latter emplaces ITE graduates into the industry and equips them with relevant skillsets

to kick-start their careers as junior agriculture technicians. To meet manpower needs for higher skills and career progression, SFA is also working with the Nanyang Technological University, Singapore and Wageningen University & Research (Netherlands) to introduce a Graduate Certificate in Food Science & Technology that covers contemporary topics on urban agri-technology, such as the post-harvest of agricultural produce as well as novel foods like microalgae and insects. This programme will commence in October 2020.

As SFA works towards delivering on our “30-by-30” goal, we also need the support of Singaporeans to make conscious choices to go for locally produced food. This will go a long way to encourage and sustain our local farmers to continue to innovate and produce quality food



for Singapore. Since 2017, SFA has been partnering with the Singapore Agro-Food Enterprises Federation (SAFEF) to organise Farmers’ Markets to raise awareness of local produce. Earlier this year, SFA also unveiled a new logo, which it co-created with the industry and public, to help Singaporeans identify local produce more easily. There is also growing interest in community farming since the launch of a pilot rooftop farm, Citiponics, in Ang Mo Kio. SFA has since worked with the Housing and Development Board (HDB) to identify more rooftop spaces on HDB multi-storey carparks across the island and will start to tender out these spaces.

Growing overseas

Over the years, we have also been supporting local farms in their overseas expansion. Growing their businesses overseas allows farms to tap on the more abundant land and manpower available to lower production costs, and, at the same time, to enable them to break into new markets. Taken together with the local demand, it will also make them more competitive by having greater economies of scale and enable them to compete based on research and innovation. We will continue to encourage our farms to anchor their expertise locally while expanding operations overseas. Some of our farms, like Apollo Aquaculture, have already done so in Brunei. This will further contribute to Singapore’s food resilience.

Ensuring safe food for all

Beyond food supply, having in place a robust food safety system is of paramount importance to ensure that the food we eat is safe. A long and complicated supply chain involving many parties may allow hazards to get into our food at any point along the chain. This results in foodborne illness incidents, which cause health and economic burden worldwide. SFA adopts strategies to ensure, manage, and enhance food safety through our regulatory regime as well as anticipatory and response mechanisms. Supporting the food safety regulatory and monitoring programme is our National Centre for Food Science (NCFS), which is the nation's food safety testing and diagnostics laboratory.

With a growing trend and interest in novel foods, last year, SFA implemented a new regulatory framework requiring companies to seek its approval and undergo a scientific pre-market assessment before placing novel foods in the market. This framework facilitates the entry of alternative proteins into the Singapore market, while ensuring their safety to consumers. To further support our assessment of novel food, SFA will be establishing an international expert working group to provide scientific advice on food safety.

SFA is committed to upholding high food safety and hygiene standards. Since its formation, SFA has conducted more than 71,000 inspections, and taken more than 2,100 enforcement actions against errant operators. For a more coordinated approach towards food safety, SFA works closely with the Ministry of Health (MOH) and the NEA under an integrated One Health Framework. Together, One Health agencies developed a coordinated emergency preparedness response plan for foodborne outbreaks at the national level to ensure food safety from farm to fork.

SFA also worked closely with MOH, Early Childhood Development Agency (ECDA), and Ministry of Education (MOE) to adopt a multi-pronged plan to reduce food poisoning in pre-schools. This included briefings on good hygiene practices for food handlers and cleaners, together with the issuance of guidelines on proper handling, storage, and consumption of catered food when it is delivered. We also conducted targeted checks on caterers that supply food to childcare centres. Indeed, in early 2019, there was a spike in food poisoning incidents in pre-schools, which was a reminder to all involved that there was no room for complacency where food safety was concerned. As for food safety at food fairs, SFA worked closely with organisers such as Citizens Consultative Committees (CCCs), Residents Committees (RCs), and People's Association (PA) to improve food hygiene practices. One good example of this cooperation was the Geylang Serai Bazaar in 2019 where SFA liaised with PA to put in place controls such as Closed Circuit Television Cameras (CCTVs) to improve food safety and hygiene conditions at the Bazaar.



In order to build a rich ecosystem for laboratory services in Singapore, SFA started to develop a network of third-party laboratories for the food industry to tap into for food testing needs. We engaged with all the private laboratories in 2019 and assessed that they have the requisite capabilities to support the food industry. To build up the competency of these laboratories, we organised trainings in key areas, for example, radioactivity testing, norovirus testing, drugs and residues testing in meat as well as meat products, and beverages, among others. With these third-party laboratories supporting the industry, SFA has been able to better focus its critical testing resource on in-house quality testing needs of the food industry since January 2020. Moving forward, we will be introducing the Laboratory Recognition Programme (LRP) which will enhance the recognition of private testing laboratories by food industry players and foreign competent authorities. We will also organise the proficiency testing programme and verification programme (under LRP) to further strengthen the reliability of the laboratory testing services provided by third-party laboratories.

Joint food safety responsibility and stakeholder engagement

Even as SFA puts in place a regulatory system and an enabling environment to ensure food safety, food business operators have a critical role to play in maintaining good food safety standards and taking responsibility for the safety of the food they offer to the public. Correspondingly, consumers should also demand that the food they consume is safely prepared while they adhere to good food hygiene practices and make informed food safety decisions.

SFA holds regular dialogues with traders and food manufacturers to raise awareness of food safety measures, encourage the implementation of food safety management systems such as the Hazard Analysis and Critical Control Point (HACCP) in the food industry, and assist them in complying with regulatory requirements. We also held our

very first visioning exercise for the food industry last June to discuss cross-industry strategic initiatives and to seed collaboration ideas.

As part of competency building to ensure food safety, SFA will enhance the training and competency framework to upskill the workforce as well as harmonise training requirements and course curriculum across the food industry. SFA will do this in partnership with institutes of higher learning (including polytechnics and ITEs) to co-develop training courses for food handlers and food hygiene officers (FHOs).

Through its public outreach efforts, SFA has been raising consumer awareness that food safety is a joint responsibility, as well as educating consumers on foodborne hazards and steps on keeping food safe. This is done through learning journeys, school/workplace talks, community events, and social media. SFA also works with industry partners to further spread food safety messages through its outreach initiatives. We will continue to equip consumers with the necessary food safety knowledge through such outreach efforts. As part of these efforts, we develop communication materials such as consumer advisories on various topics ahead of anticipated public concern, for example, consumer advisories on topics related to seasonal foods such as hairy crab to convey food safety risks.



On the international front, we continued to promote and safeguard Singapore's interest in food, agriculture, and fisheries. Singapore attended the G20 Agricultural Deputies' Meeting, 41st FAO Conference, Special SOM 40th ASEAN Ministers on Agriculture and Forestry (AMAF), and Special SOM 18th AMAF Plus Three to protect Singapore's interests, as well as share details about the formation of SFA and the need for urban food solutions. Singapore was also invited as speaker and panellist to introduce the formation of SFA and Singapore's science-based risk management approach to food safety at the FAO 1st World Food Day Official Ceremony in Bangkok, Thailand.

Building capabilities

Last year, we completed the set-up of our SFA Operations Centre (SOC). This will help enhance our ability to monitor the food supply chain from farm to fork, and enable real-time food safety surveillance and incident management from a common situation picture. The SOC will be able to aggregate data and provide a real-time dashboard for field operations including incident management, better sense-making, along with timely interventions and strategic overview of key food items through supply chain traceability, providing supply and demand trending and price indices, and in-country overall stock holding for food supply resilience analysis. Coupled with horizon scanning business intelligence, SFA will be able to conduct predictive analytics and respond accordingly to different food disruption situations as part of our early-warning food security system.



The road ahead

Our achievements are the result of the hard work and dedication of our staff. Given the uncertain global backdrop, ensuring food security is not a choice but an imperative for Singapore, as it is an existential issue. COVID-19 has demonstrated how the global food supply chain could be disrupted in a pandemic scenario and highlighted that we may not always be able to buy food even when we can afford it. It has also shown that the supply chain is only as strong as its weakest link and it is important to either strengthen this weak link or to look for alternatives for a sustainable supply of food.

With political will and strong support from the Board, industry, and members of the public, I have every confidence that the SFA leadership and team can overcome the challenges in time to come and will boldly chart the way forward towards achieving Singapore's vision of "30-by-30" and delivering safe food for all.

LIM CHUAN POH (MR)
CHAIRMAN, SFA

BOARD OF DIRECTORS.



Mr Lim Chuan Poh
(Chairman)



Mr Lim Kok Thai



Dr Ho Kim Wai



Mr Ong Chao Choon



Ms Thien Kwee Eng



Ms Toh Hwee Tin



Ms Samsiah Suliman



Prof John Lim



Mr Krishnan Muthappan



Mr Jim Lim



Mr Pier Luigi Sigismondi



Ms Han Yong May



Dr Ralph Graichen



Mr Andrew Kwan

Mr Lim Chuan Poh (Chairman)

- Board of Trustees, Asia Pacific Breweries Foundation
- Member, Singtel Technology Advisory Panel
- Board Member, National Research Foundation
- Board of Trustees, Nanyang Technological University
- Chairman, Lee Kong Chian School of Medicine Governing Board
- Board and Council Member, Science and Technology in Society Forum
- Member, Japan's World Premier International Initiative Programme Assessment and Review Committee
- Special Committee Member, Japan Science and Technology Agency Advisory Committee

Mr Lim Kok Thai

- CEO, Singapore Food Agency
- Board Director, AgriFood Technologies Pte. Ltd.
- Member, Tropical Marine Science Institute Management Board

Dr Ho Kim Wai

- Associate Professor, Nanyang Technological University

Mr Ong Chao Choon

- Partner, PricewaterhouseCoopers and related entities
- Board Member, Art House Limited

Ms Thien Kwee Eng

- Board Director, Design Singapore Council Pte. Ltd.
- Board Member, Advisory Board of Women's Forum Asia
- Board Member, Governing Board for Experimental Drug Development Centre, Agency for Science, Technology and Research (A*STAR)
- Member & Co-lead for Industry Development Workgroup, National Precision Medicine Steering Committee (Ministry of Health)
- Member, Review Panel for Industry Alignment Fund-Pre-Positioning ProgramME for Health and Biomedical Domain, A*STAR

Ms Toh Hwee Tin

- Director, Industrial Relations, National Trades Union Congress
- Executive Secretary, Food, Drinks and Allied Workers' Union
- Executive Secretary, Attractions, Resorts and Entertainment Union
- Board of Advisors, Institute of Service Excellence@Singapore Management University

Ms Samsiah Suliman

- Managing Director, Jumain Sataysfaction Pte. Ltd.
- Managing Director, Asli Village Pte. Ltd.
- Owner, Jumain Enterprise
- Owner, Asli Satay Club Llp.
- Owner, Satexpress

Prof John Lim

- Executive Director, Centre of Regulatory Excellence, Duke-NUS Medical School
- Senior Advisor, Ministry of Health
- Chairman, Singapore Clinical Research Institute
- Board Member, St Andrew's Mission Hospital
- Council Member, Advertising Standards Authority of Singapore (ASAS)
- Chairman, Health & Wellness Subcommittee, ASAS
- Member, Executive Board, APEC Life Sciences Innovation Forum
- Member, Advisory Group, US Pharmacopoeia Quality Institute
- Advisor, Mobile-health Network Solutions (MaNaDr)

Mr Krishnan Muthappan

- Board Member, Hindu Endowment Board
- Director & Shareholder, Markham Agro Pte. Ltd.
- Director, Markham Agro (19 HK) Pte. Ltd.
- Director & Shareholder, Meleri Capital Pte. Ltd.

Mr Jim Lim

- Withers KhatterWong LLP, Partner and Head of Department, Intellectual Property and Technology

Mr Pier Luigi Sigismondi

- President, Worldwide Packaged Foods, Dole Asia Holdings

Ms Han Yong May

- Editor, Chinese Media Group NewsHub, Singapore Press Holdings

Dr Ralph Graichen

- Director, Food and Consumer Care, A*STAR

Mr Andrew Kwan

- Chairman, Commonwealth Retail Concepts Pte. Ltd.
- Chairman, Commonwealth Capital Pte. Ltd.
- Chairman, Commonwealth Food Services Pte. Ltd.
- Chairman, Commonwealth Harvests Pte. Ltd.
- Chairman, Globamatrix Holdings Pte. Ltd.
- Chairman, Bakematrix Pte. Ltd.
- Chairman, Swiss-Bake Pte. Ltd.
- Chairman, Commonwealth Culinary Creations Pte. Ltd.
- Chairman, Zac Meat & Poultry Pte. Ltd.
- Chairman, Spectra Secondary School
- Board Director, Focus on the Family
- Board Member, Enterprise Singapore
- Vice-President, Restaurant Association of Singapore
- Non-Resident Ambassador to the Kingdom of Sweden, Ministry of Foreign Affairs
- Director, The Steward Company of Singapore
- Director, Spinnaker360 Pte. Ltd.
- Director, Smorgasbord International Pte. Ltd.
- Director, NPE Print Communications Pte. Ltd.
- Director, Barramundi Asia Pte. Ltd.
- Director, Barramundi Asia Holdings Pte. Ltd.
- Director, Commonwealth Food Solutions Pte. Ltd.
- Director, Baker & Cook Pte. Ltd.
- Director, Metro Graphic Pte. Ltd.
- Director, Metro Packaging Pte. Ltd.
- Director, The Soup Spoon Pte. Ltd.
- Director, Udders First Pte. Ltd.
- Director, &Willin Pte. Ltd.
- Director, TCGC Pte. Ltd.
- Director, Commonwealth Kokubu Logistics Pte. Ltd.
- Shareholder, Marine Produce Australia Ltd.
- Shareholder, MPA Fish Farms Pty. Ltd.
- Shareholder, MPA Marketing Pty. Ltd.
- Council Member, Singapore Business Federation
- Non-Resident Fellow, NUS Eusoff Hall
- Elder, Bethesda Hall, Council of Elders

LEADERSHIP TEAM.



Mr Lim Kok Thai
Chief Executive Officer



Dr Tan Lee Kim, Kim
Director-General for
Food Administration &
Deputy CEO



Mr Melvin Chow
Senior Director, Food
Supply Resilience Division



Mr Kevin Khng
Senior Director,
International Relations
Division



Dr Choo Li Nah
Senior Director,
Communications & Service
Quality Division



Dr Leong Hon Keong
Senior Director,
Compliance Management
Division



Ms Siti Suriani
Acting Senior Director,
Licensing & Permits
Division



Dr Astrid Yeo
Senior Director, Food
Regulatory Management
Division



Ms Kho Soo Pei
Senior Director, Corporate
Development Division
Senior Director
(Covering), Planning &
Organisation Division



Ms Melin Lin
Senior Director, Research
Planning & Systems
Integration Division
Senior Director, Urban
Food Solutions Division



Ms Cheong Lai Peng
Senior Director, Industry
Development &
Partnership Division



A/P Joanne Chan
Centre Director, National
Centre for Food Science

CORPORATE GOVERNANCE.

The SFA Board and Leadership Team have put in place a framework for adherence to good corporate governance practices. The SFA Act governs the work of SFA and its Board. Board members hail from a broad range of fields from both the public and private sectors, providing a spectrum of expertise and depth of experience to the organisation.

Internal control framework

SFA has in place an organisation-wide system of internal controls, which includes:

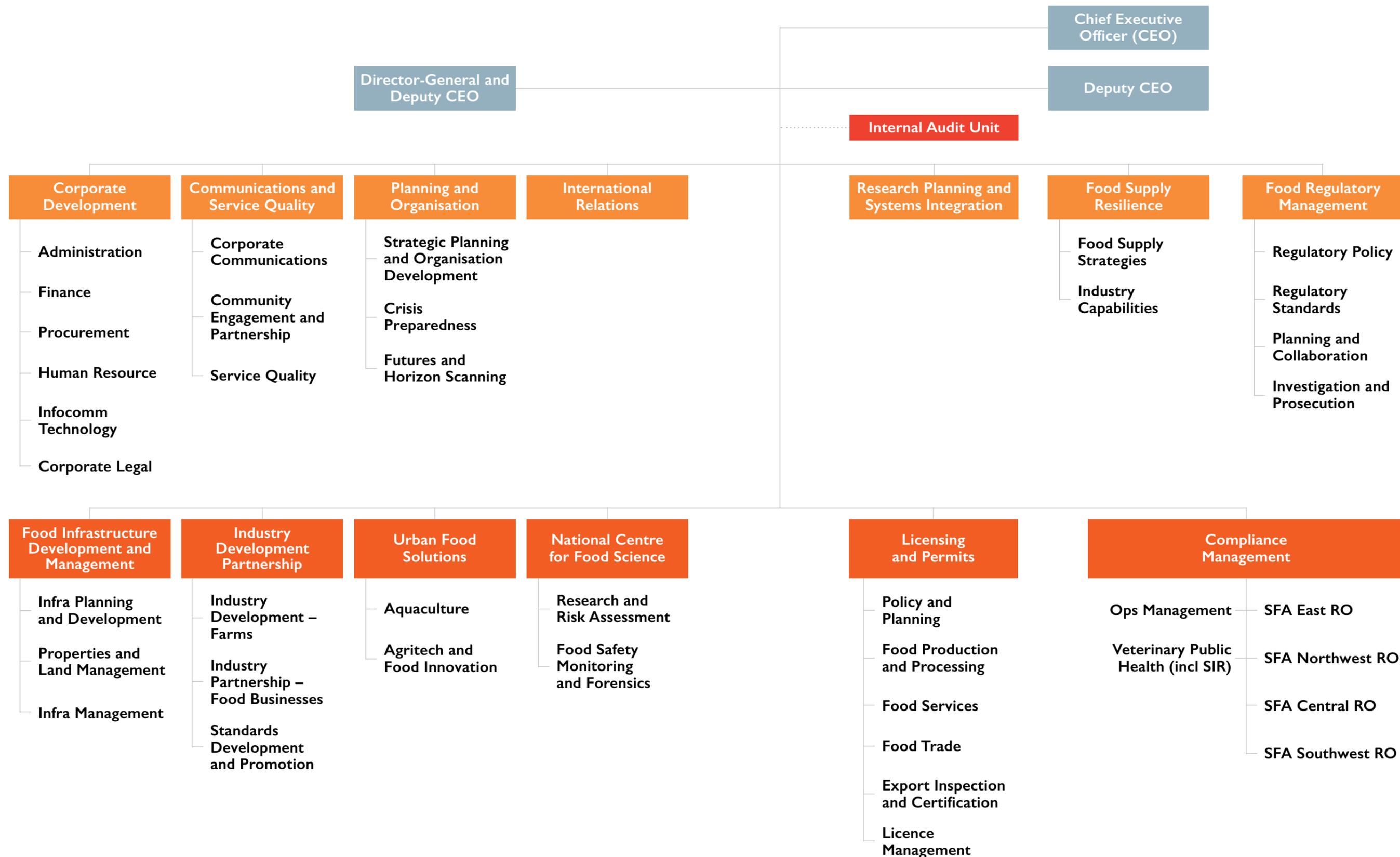
- An organisation structure with clear definitions of responsibility and reporting mechanisms at different levels of the organisation
- Documented policies and procedures, proper segregation of duties, approval procedures and authorisations and checks and balances built into SFA's processes
- Systems to safeguard assets, maintenance of proper accounting records, reliability of financial information, compliance with appropriate legislation, regulations and best practice
- Financial Regulations that set out financial policies, procedures and financial authority on the various operations in SFA;
- A code of conduct that lays out the values and key principles governing the conduct of officers and provides guidance as they carry out their daily work
- A whistleblowing policy that allows officers and external parties to report on fraudulent and wrongful practices; and
- Independent internal audit function and external audit functions

These internal control systems are designed to manage risks rather than to eliminate the risk of failure and provide only reasonable and not absolute, assurance against fraud, material misstatement or loss.

Internal and external audit functions

The Internal Audit Unit operates independently from other groups in SFA and reports to the SFA Board's Audit and Risk Committee. The Internal Audit Unit advises SFA's management and the Audit & Risk Committee on the system of internal controls in SFA. Reviews performed by the unit help the board in promoting good corporate governance by assessing the design and operating effectiveness of the controls. The reviews also focus on compliance with government instruction manuals and SFA's policies and procedures.

ORGANISATIONAL CHART.





SECURING OUR
FOOD SUPPLY

**NEVER
PUT ALL
YOUR
EGGS IN
ONE
BASKET**

FOOD SECURITY IS FUNDAMENTAL TO OUR NATIONAL SECURITY.

The government has been proactively planning for the long-term and taking action to safeguard Singapore's food supply. Our strategy of "three food baskets" — (1) diversifying food sources, (2) growing locally and (3) growing overseas — has served the nation well in securing its food supply. Singapore also continued to achieve top ranking in recent editions of the Global Food Security Index by the Economist Intelligence Unit.

However, large trends are obliging us to do more for food security. While Singapore has set the stage with effective strategies to secure food supply, we operate in an environment where natural resources are limited, effects of climate change are imminent and geopolitical or disease situations are unpredictable. To mitigate and overcome these challenges, the collective efforts of the government, industry and public are required.

FOOD SUPPLY IN SINGAPORE

(Jan-Dec 2019)

(t)tonnes, (m)million, (kg)kilogram, (pcs)pieces

	Import volume 	Per capita consumption 
Leafy vegetables 	78,354t	16kg
Chicken 	206,415t	34kg
Pork 	116,562t	20kg
Beef 	32,503t	4kg
Fish 	94,590t	16kg
Hen shell eggs 	1,539m pcs	360 pcs
Fruits 	428,869t	71kg
Other vegetables 	456,985t	79kg
Duck 	13,205t	2kg
Mutton 	14,548t	2kg
Other seafood 	35,792t	6kg

Note: All meat and seafood are in live/chilled/frozen forms; vegetables and fruits are in fresh/chilled forms

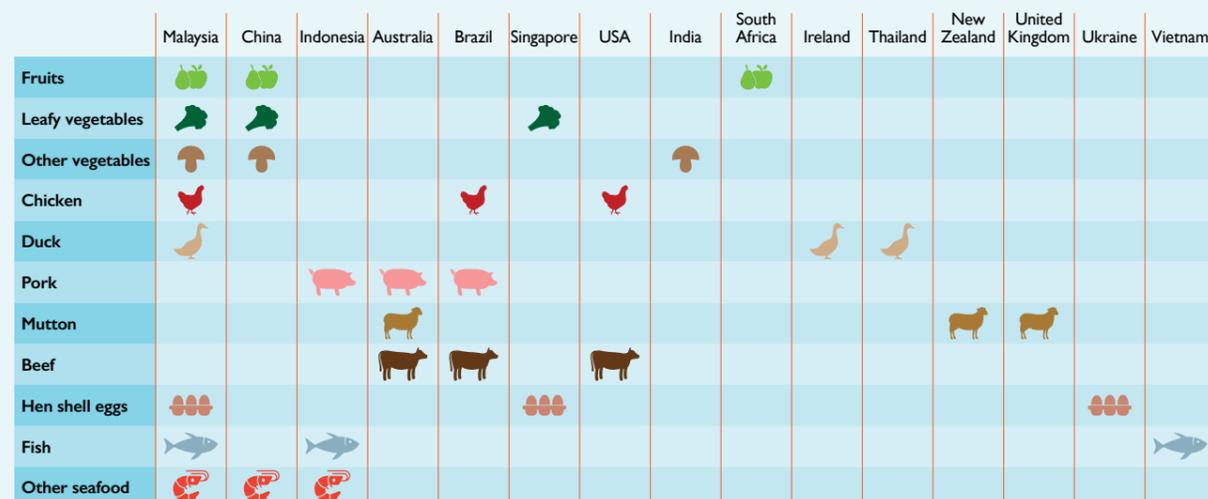
MAJOR SOURCES OF SUPPLY OF KEY FOOD ITEMS

(Jan-Dec 2019)



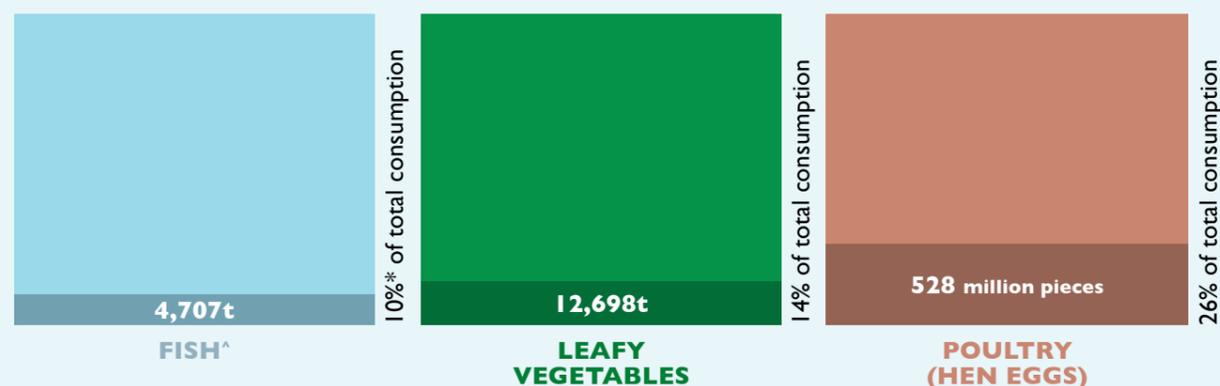
TOP 3 SUPPLY SOURCES OF KEY FOOD ITEMS (COUNTRIES & REGIONS)

(Jan-Dec 2019)



LOCAL FARM PRODUCTION

(Jan-Dec 2019)



[^]Refers to local farm production figures only. It does not include local landings (1,418 tonnes in Year 2019)

*Refers to local farm production as a % of fish (live and chilled only) consumption

LICENSED FOOD FARMS IN SINGAPORE

(Jan-Dec 2019)

	Qty
Sea-based fish	109
Land-based fish	12
Leafy vegetables	77
Beansprouts	6
Hen and quail eggs	5
Other general agriculture farms (e.g. goat, frog, shrimp, cattle, food crops)	11
Total	220

BASKET I: DIVERSIFYING IMPORT SOURCES

Our food supply is heavily dependent on imports, with overseas supplies accounting for over 90 percent. Despite this, we have successfully kept food readily available to and affordable for Singaporeans. Today, our food is imported from over 170 countries/regions. Should there be a disruption to any one source, Singapore is in a good position to work with our network of importers to tap alternative food sources, and ensure that our food supply remains stable. Singapore's food importers have leveraged the nation's connectivity and the global free trade environment to import from multiple overseas sources. These are the results of our deliberate strategy to diversify our food sources.

Staying effective and agile during COVID-19

Lockdown measures brought about by COVID-19 have adversely impacted global trade and supply chains. For Singapore, this crisis underscores our vulnerabilities to supply disruptions in food, which is primarily imported. The effectiveness and agility of the diversification strategy in our national food supply chain were well demonstrated at the onset of the COVID-19 outbreak. Even when consumers rushed to stock up on essential food and household items (after the outbreak response was raised on 7 February 2020 and various countries began to implement lockdown measures), our supermarket shelves continued to be promptly restocked.

To keep our diversified food supply lines intact, Singapore partners with like-minded countries to keep trade links open. In March 2020, amidst the COVID-19 global pandemic, Singapore, along with Australia, Brunei Darussalam, Canada, Chile, Lao PDR, Myanmar, New Zealand, and Uruguay, affirmed our commitment to maintaining open and connected supply chains.

The ability to swiftly respond to any crisis can mitigate its impact on our food industry. In the early stages of the COVID-19 situation, SFA, together with an insurance broking and risk management solutions company,



organised a Food Industry Business Continuity Planning Brief on 14 February 2020. The objective was to prepare the food industry for an impending crisis that quickly unravelled and disrupted many food businesses in subsequent weeks. To help the industry ensure business continuity, SFA continued to offer extensive support in areas such as crisis management, advisories on food safety and operational matters relating to COVID-19, and the availing of supplies of health and safety protection equipment to those who need them.

Accrediting new sources

SFA actively accredits new sources to support supply diversification. In the event of any disease outbreak, SFA works with relevant overseas authorities to zone or compartmentalise sources affected by the outbreak, so that food can still be imported from unaffected areas in the same country. In FY 2019, we accredited 83 new farms and establishments as additional sources of food.



COVID-19 lockdown measures amplify Singapore's vulnerability to disruptions in global supply chains, particularly for food, as over 90% of our food supply is imported. As part of emergency preparedness, SFA is planning for a range of supply shock scenarios, while staying on our feet as we respond quickly to the evolving COVID-19 situation.

Implementing a new business continuity requirement

Our food importers are a key node in the supply chain, and it is critical that they avoid being over-reliant on a single source. Food traders should adopt business continuity plans (BCPs), including preventive strategies, to mitigate the impact of food supply disruptions. Starting with egg importers, a new licensing requirement came into effect on 1 April 2019 for them to submit BCPs to SFA for approval prior to licence application and/or renewal. Importers will only be granted licences if their BCPs are satisfactory, and must subsequently adhere to their approved BCPs.

Considering the time needed by importers to review their business plans and establish contacts with new suppliers, SFA engaged with them one month before the requirement came into effect. Thereafter, we provided a grace period of five months before the implementation of this licensing requirement. SFA also arranged for a BCP consultant to brief importers and provide assistance where required.

In addition, to support egg importers in their diversification efforts, SFA accredited 14 additional overseas egg farms in FY 2019. These updates on new accredited sources were also regularly sent to importers. We also linked traders up with freight companies and helped them to seek support from supermarket chains.

Supporting industry in seeking new sources and businesses

SFA consistently works with the industry to provide support and facilitate meaningful exchanges. In FY 2019, we carried out initiatives to help our stakeholders seek alternative import sources and expand business contacts.

SFA organises food sourcing trips for importers to explore new sources, seek out business opportunities, and strengthen existing trade ties. During the FY, we organised sourcing trips to Australia, Thailand, Vietnam, the Philippines, and Brunei, involving importers of vegetable/fruits, seafood, and eggs. These efforts are especially important for food commodities such as eggs and vegetables, where current supplies are highly dependent on certain dominant countries. A Singapore delegation also visited fish farms, processing facilities, and a fisheries and seafood trade exhibition, as part of a study trip led by SFA to Taiwan.

SFA engages with trade associations, key supermarket retailers, embassies, and trade offices. Through industry dialogue, senior management interaction, and one-to-one business meetings, we share information and seek feedback on matters concerning the industry. Relevant overseas business contacts are also introduced



to the local industry and business matching/networking sessions are organised with foreign delegations. In FY 2019, we organised over 10 dialogues and engagement sessions with 15 industry associations and various industry leaders.

Managing key food distribution nodes

Wholesale food centres are key distribution points in Singapore's food supply chain. SFA oversees two fishery ports and a fruit and vegetable wholesale centre to facilitate the smooth importation of food.

SFA manages the Jurong Fishery Port (JFP) and Senoko Fishery Port (SFP), the wholesale and distribution centres for both locally sourced and imported fish and seafood produce of all forms (live, chilled, and frozen) in Singapore. In FY 2019, there were 131 vendors in JFP and 30 vendors in SFP. Singapore's top five fish sources were Indonesia, Vietnam, Malaysia, Norway, and Thailand.

VESSEL CALLS AND FISH VOLUMES HANDLED BY JFP & SFP

(FY 2019)

Fishery port	Vessel calls handled	Fish volumes handled
JFP	2,780	42,314 (tonnes)
SFP	1,084	5,783 (tonnes)

SFA also manages the Pasir Panjang Wholesale Centre (PPWC), the main wholesale and distribution centre for imported and local fruits and vegetables produce in Singapore. In FY 2019, there were 381 tenants in PPWC. Singapore's top five sources of fruits were Malaysia, China, South Africa, Australia, and the Philippines, while our top five sources of vegetables were Malaysia, China, India, Australia, and Indonesia.

BASKET 2: BOOSTING LOCAL PRODUCTION

The business of feeding a nation is a national security priority. Producing food locally enhances Singapore's food security by providing a buffer in times of crises. Its shorter local supply chain from farm to fork translates to lower food miles, which keeps food fresher, avoiding losses or carbon footprint that would have arisen in a long value chain for imported food.

SFA aims to increase local production with a "30-by-30" goal – that is, to meet 30 percent of Singapore's nutritional needs by 2030, up from less than 10 percent today. This calls for a transformation or game-change of the local agri-food sector into one that is highly productive, innovative, and sustainable.

Planning farm spaces for the long-term

Singapore has less than one percent of land dedicated to agriculture. Within such tight constraints, a holistic and long-term approach to space planning is critical in enabling the industry to scale up and tackle the ambitious "30-by-30" goal. This entails strategically allocating land, sea, industrial, and alternative spaces for production.

Developing integrated farm lands

The government's intention to redevelop the greater Lim Chu Kang region as part of the masterplan towards our "30-by-30" goal was announced in March 2020. The greater Lim Chu Kang region would integrate hi-tech food farming and food processing/manufacturing with non-food farming (e.g. landscape nurseries, ornamental farms) industries, to create a vibrant and attractive environment for future agri-tech workers and visitors. There are also plans to explore the design for shared facilities for district cooling systems, water intake, and water management/valorisation to achieve economies of scale and sustainability. SFA will work with farms, including successful bidders in recent land sales exercises, to work towards this vision for Lim Chu Kang.



SFA's plans for Lim Chu Kang will also complement the development of the Agri-Food Innovation Park, or AFIP, which was previously announced as a hi-tech agri-food cluster in Sungei Kadut to enable agencies to test-bed and catalyse sustainable agri-food solutions. The food production innovations developed in AFIP can scale up in Lim Chu Kang to contribute towards our "30-by-30" goal.

Tendering out farm lands to capable farmers

During the FY, SFA continued to facilitate and support hi-tech and productive farms to set up in Singapore, by tendering out land. A tender for 10 land parcels was launched on 19 June 2019. On 26 November 2019, SFA awarded the tender for four land parcels for beansprout farming and one land parcel for vegetable farming. On 8 January 2020, one land parcel was awarded for general agriculture (food) farming.

The land parcels were tendered using the Fixed Price tender method for vegetable and bean sprout parcels, and Concept & Price tender method for General Agriculture parcels. Proposals for both types of tenders were assessed based on production capability, production track record, relevant experience and qualification, and innovation and sustainability.



Unlocking sea space for sustainable fish farming

Besides land space, SFA is also looking to unlock the potential of farming at sea to boost local production of fish and enhance our food security. A broad scan of the deeper Southern Waters was conducted in FY 2019 to identify potential aquaculture sites where sustainable farming systems can be adopted. Various spatial, production, and environmental constraints were taken into consideration to determine potential sites.

In February 2020, SFA engaged with nature groups, industry stakeholders, and academics to share our plans to transform coastal farms in the Straits of Johor and avail new spaces in Southern Waters. Efforts will be made to ensure that fish farming practices are sustainable, climate-resilient, and able to mitigate the effects of environmental threats to farms and our marine environment.

Adapting alternative spaces for urban farming

In addition to rejuvenating under-utilised space, commercial urban farming has brought fresh food production closer to the community, and created employment opportunities for residents in the vicinity.

The first commercial farm located on a Housing Development Board (HDB) Multi-Storey Carpark (MSCP) in the heartlands, Citiponics, harvested its first yield of vegetables in April 2019.



In another project, the former Henderson Secondary School was put up for redevelopment into Singapore's first integrated space comprising of an urban farm, childcare centre, and nursing home within a state property. The adaptive reuse of the site contributes towards local food production and offers opportunities to test-bed innovative technologies for urban farming. The farm space within the former school site was awarded in May 2019 to City Sprouts.



In FY 2019, SFA continued to work with other agencies and various stakeholders to unlock more spaces in the heartlands for commercial urban farming. Work is underway to launch a new tender for rooftop spaces on HDB MSCPs for urban farming.

Reducing regulatory hurdles

SFA co-chairs the Regulations Workgroup (RWG) with Enterprise Singapore (ESG). RWG was set up to drive whole-of-government efforts in reducing regulatory hurdles in the process of setting up and maintaining farms, and to update regulations pertaining to hi-tech farm developments. Since April 2019, RWG has embarked on the following initiatives:



- Adopting an outcome-based approach to streamline farming regulatory requirements to reduce compliance cost of farms
- Developing a comprehensive industry guide on the various regulatory requirements in setting up a farm
- Facilitating clearance of farm development plans for companies that were awarded agri-land tenders, by conducting a one-stop consultation session with all regulatory agencies present
- Facilitating liaison between regulatory agencies and farms

On 31 October 2019, Senior Minister of State for Environment & Water Resources Dr Amy Khor and Senior Minister of State for Trade & Industry Dr Koh Poh Koon met with some 60 local farmers in a town hall and dialogue session. The session was co-organised by SFA and the Singapore Agro-Food Enterprises Federation (SAFEF) as a platform to share our "30-by-30" goal with farmers and provide updates on the regulatory requirements for new farmland tenders.



Accelerating production to meet "30-by-30" amidst COVID-19

The "30-by-30" goal was initiated in 2018 with the primary intention to adapt to challenges posed by climate change and resource scarcity. The COVID-19 situation presented greater impetus to speed up local food production capacities. As such, a timely \$30-million

"30 by 30 Express Grant" was drawn up to help the agri-food industry quickly and significantly ramp up local production in eggs, leafy vegetables, and fish. This was scheduled for announcement on 8 April 2020.

COVID-19 underscores the importance of local food production. A home-grown supply of food reduces our reliance on imports and provides the necessary buffer in the event of food supply disruptions.

Building a vibrant ecosystem in agri-food technology

By leveraging innovative technologies, our agri-technologists can raise productivity exponentially and grow food more sustainably. Besides helping us meet the "30-by-30" goal, a vibrant ecosystem in agri-food R&D will also continue to help us build Singapore's reputation as a living technological laboratory for urban food production.

To profile Singapore as a forerunner in urban food solutions, SFA and various other government agencies lent our support to the Asia-Pacific Agri-Food Innovation Week held on 20-22 November 2019. We worked closely with the organiser to curate a conference programme that brought over 800 delegates together to discuss the latest trends, innovations, and opportunities in Asia's agri-food supply chain. SFA also invited institutes of higher learning to showcase their agri-technology in the event's exhibition segment.

Helping farms scale up by co-funding technology and equipment

The Agriculture Productivity Fund (APF) supports local farms in their capability development and drive towards higher productivity. Through APF, SFA co-funds the adoption of farming systems to better control environmental variables, test-bed technologies, and boost production capabilities.

A cumulative total of close to \$38 million has been committed to successful applicants since October 2014. This funding initiative was extended until the end of 2020, and SFA has begun exploring new ways to expand its support for technology test-bedding and adoption, as well as resource efficiency in local farms.

Prior to APF, local farms were supported through the Food Fund, which was discontinued in 2014. As at the end of FY 2019, all 310 approved projects under the Food Fund had been closed with about \$24 million disbursed.

FOOD FUNDING

Food Fund & APF in review
(cumulative as at the end of FY 2019)

Food Fund amount

Committed **\$30.94mil**

Disbursed **\$24.42mil**

Food Fund projects

Approved **310**

Closed **310**

APF amount

Committed **\$39.8mil**

Disbursed **\$13.9mil**

APF projects

Approved **188**

Closed **144**

KEY PRODUCTIVITY OUTCOMES

Key productivity outcomes by APF recipients
(cumulative as at the end of FY 2019)

Man hours saved



237,241

Increased production



Leafy vegetables

↑ 1,631t



Fish

↑ 528t



Hen shell eggs

↑ 46m pcs

Researching into sustainable urban production of food for the future

R&D plays a key role in plugging existing technological gaps in agri-food production, and innovating solutions to overcome resource constraints, raise productivity, and enhance sustainability. It is also the way forward to discover creative ways to meet future demands of the growing global population.

Urban farming is gaining popularity in highly built-up cities. Novel foods such as alternative proteins can complement traditional meat producers, with the promise of producing large quantities of proteins with smaller amounts of resources in a climate-resilient and sustainable manner. To steer the growth of this sector and nurture a forward-looking agri-tech and food ecosystem, SFA developed a regulatory framework for novel food and launched two R&D grant calls in FY 2019.



Developing a regulatory framework for novel food

Having a regulatory framework for novel foods will ensure that consumers are protected from potential risks that may be associated with novel foods made using new production methods or foods that do not have any prior history of human consumption. The framework will also facilitate food innovation by providing clarity on the type of safety information that needs to be included in companies' safety assessments for novel foods.

In November 2019, SFA organised a Regulators' Forum on Novel Food as a platform for local and overseas regulators and industry players to discuss challenges and possible solutions in the safety assessment of novel food. SFA's novel food regulatory framework was shared at this forum, and at the Asia Pacific Agri-Food Innovation Week.

Launching R&D grant calls

SFA and A*STAR jointly developed the Singapore Food Story (SFS) R&D Programme to look into the research of sustainable urban food production, future foods, and food safety science and innovation. Some \$144 million has been allocated towards the programme from the government's Research, Innovation and Enterprise 2020 (RIE2020) plan.

Under the SFS R&D Programme, in December 2019, SFA and A*STAR launched grant calls in 'Sustainable Urban Food Production' and 'Future Foods: Alternative Proteins'. The 'Sustainable Urban Food Production' grant call was developed following an engagement session organised by SFA in August 2019 for close to 130 participants from the academia and industry.

The 'Sustainable Urban Food Production' call received positive responses from research entities, academic institutions, local companies, and overseas partners. Over 140 submissions were received in total, and results will be announced in December 2020.

Conducting R&D and facilitating collaboration

In efforts to grow the local R&D ecosystem and deepen Singapore's expertise in agriculture, SFA has been piloting R&D projects in partnership with Institutes of Higher Learning (IHLs), Research Institutes (RIs), and companies. During the FY, with funding obtained from competitive research funding, collaborations were initiated on projects covering topics such as urban growing systems, nutrient preservation, and upcycling of food waste to farm inputs.

Aquaculture research

SFA's Marine Aquaculture Centre (MAC) was established to deepen Singapore's expertise in the areas of aquaculture genetics, nutrition, and health. During the FY, shared experimental tank systems were set up at MAC to enable local IHLs and companies to conduct aquaculture R&D. The IHLs could also leverage MAC's existing facilities such as breeding tanks and rotifer culture system to trial experimental systems or prototypes. MAC's expertise in fish husbandry and the availability of biological materials such as fish fry and microalgae serve to further facilitate research activities.

In addition, MAC worked with GovTech in FY 2019 on the use of artificial intelligence (AI) and image recognition technology to automate the counting of rotifers. This replaced the previously time-consuming daily manual counting of rotifers, which are essential in hatcheries as feed for fish larvae. With the digitalisation of this routine operation, the time taken for rotifer culture management was reduced from 40 minutes to one minute.



Adisseo, one of the world's leading global animal nutrition companies, opened its aquaculture R&D facility at MAC in December 2019. At the facility, collaborations will be initiated with local Institutes of Higher Learning to develop nutritional solutions that will improve feed conversion ratio and fish health. Such effort will contribute to the sustainability and productivity of farms in Singapore and the region.



Beyond conducting and facilitating research, MAC also provides learning opportunities and transfers technology to the industry. During the FY, we invited an industry expert to conduct a technical workshop on live feeds for local farmers. An aquaculture technical exchange was also organised for overseas participants from an aquaculture institute in the USA. These activities enabled greater understanding of SFA's intensive and sustainable efforts in securing food fish supply for Singapore.

Horticulture research

Singapore seeks to build a circular economy for food to reduce loss and convert waste into resource for another part of the supply chain. There has been increasing local interest to use food waste compost (FWC) as fertiliser for agricultural purposes. FWC is rich in nutrients that are potentially useful as fertiliser replacement. However, there is currently a lack of guidelines on the use of FWC for agriculture.

In FY 2019, SFA initiated a trial on FWC to identify the suitable application rates for vegetable cultivation. Preliminary results showed that FWC could be used as basal fertiliser to grow vegetables, as it is possible to achieve yields comparable to using chicken manure compost. Further studies on use of FWC for vegetable growing and in large-scale farm application will be carried out.

Developing a pipeline of local agricultural talents

Agri-food is a growth sector that will provide new jobs and exciting career opportunities for Singaporeans as agriculture engineers, urban farming specialists, and researchers. SFA is working with several IHLs to groom talents in agriculture technologies, with in-depth understanding of urban farming processes and business models, and expertise in areas including engineering, info-communications technology, and entrepreneurship. With the industry, government, and IHLs working closely on innovation and R&D, Singapore has the potential to become a leader in agricultural technology.

Supporting urban agriculture research in junior college

In 2018, Life3 Biotech (Life3), National Junior College (NJC), and the then-Agri-Food & Veterinary Authority signed a Memorandum of Understanding to collaboratively establish Project Cube/Roots – Singapore’s first urban agriculture research facility in a junior college for R&D of innovative, sustainable agri-tech solutions for the production of healthy food.

The facility was launched in May 2019. Housed together with NJC’s existing scientific research facilities, it provides space, equipment, and support to help nurture the next generation of agricultural experts. During the FY, SFA worked with Life3 and NJC to scope and provide technical advisory on student research projects. Training sessions on edible crop production were also conducted to equip NJC’s teachers and students with the necessary basic knowledge and skills in growing vegetables.

Driving R&D, innovation and training in aquaculture

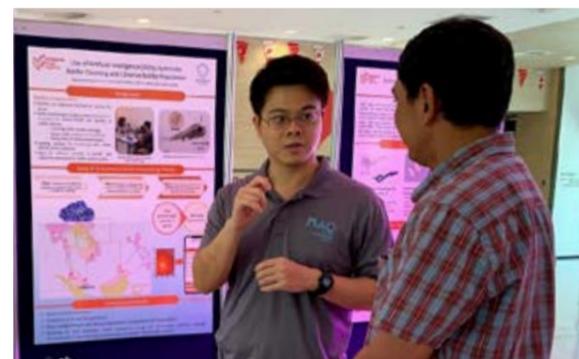
As part of a consortium of nine research institutes, agencies, universities and polytechnics, SFA is committed to supporting programmes run by the Aquaculture

Innovation Centre (AIC). Launched in June 2019, this first-ever centre of innovation at Temasek Polytechnic will drive R&D and co-innovation partnerships as well as offer training and development opportunities in agri-tech. Key focus areas will be on: (1) nutrition, feeds, additives and feeding management; (2) health and disease management; and (3) genetics, breeding and seed production.



Meeting industry needs with internship and academic certification

SFA has in place an ‘Attract, Emplace and Retain’ strategy to encourage students to pursue a career in the agri-food sector. In FY 2019, SFA continued to work with IHLs and the industry to provide structured internship for a total of 21 students who were matched to 11 farms. A local farm also had one of its staff attached to SFA for technical training on aquaculture.



In addition, SFA collaborated with Republic Polytechnic to offer a new part-time Diploma in Applied Science in Urban Agricultural Technology for adult learners, and with the Institute of Technical Education on a SkillsFuture Work-Study initiative. A Graduate Certificate programme in Food Science & Technology, offered by Nanyang Technological University and Wageningen University & Research (Netherlands), is also in the pipeline for commencement in October 2020.

Drumming up demand for local produce

Over the years, the government has been encouraging consumers to support our farmers by choosing local produce. Their spending choices contribute directly to the commercial viability of local farmers and Singapore’s food security. In FY 2019, SFA continued to engage with consumers through various outreach initiatives.

Launching the Year of ‘2020: Singapore Food Story’

On 10 February 2020, the Ministry of Environment and Water Resources (MEWR) launched the ‘2020: Singapore Food Story’ campaign to focus the year’s efforts on enhancing Singapore’s food security. As part of this campaign, SFA began working on a series of integrated marketing communications and initiatives that will be rolled out from August 2020 to heighten public awareness of food security and inspire consumers to increase consumption of local produce.

Together with MEWR, a pre-campaign survey was conducted to establish baseline findings for subsequent evaluation of the communications and engagement impact. It also provided insights into Singapore residents’ attitudes and behaviour towards local produce.

Co-creating a new SG Fresh Produce logo

To promote and help consumers better recognise local produce, SFA brought the industry and public together in the co-creation of a new ‘SG Fresh Produce’ logo. The new logo is targeted to be rolled out with a soft launch online and on the packaging of local produce from mid-June and August 2020, respectively.



Reaching out to the public to raise awareness

To raise public awareness of local produce, SFA and the Singapore Agro-Food Enterprises Federation (SAFEF) continued to organise SG Farmers’ Markets. In FY 2019, these events were held in Hillion Mall, Bishan Community Centre, and Our Tampines Hub. Each event attracted about 6,000 visitors. More than 20 local farmers participated in each edition.



At the annual Singapore Food Expo (May 2019) and Asia Pacific Food Expo (November 2019) organised by the Singapore Food Manufacturers’ Association, SFA raised awareness of locally farmed produce and food alternatives such as frozen meat. We conducted cooking demonstrations featuring these food items. Visitors were given the opportunity to taste these dishes, as well as learn more about these food items through SFA’s educational materials and quizzes.

SFA also participated in the launch of the Citiponics rooftop farm, the National Environment Agency’s Clean & Green Singapore 2019 carnival, and the Kranji Countryside Association’s ‘Local Farm Weekend’ event in FY 2019.



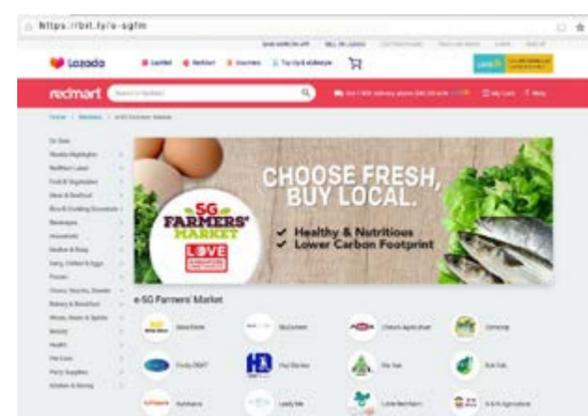
We partnered KidZania Singapore to set up an indoor vegetable farm in its premises, with aims to ingrain the idea of urban farming as a career in the minds of audiences aged four and above. In this segment, participants learn the evolution of farming in Singapore and the current state of hi-tech farming. A simulation of the controlled environment of an indoor soil-less vegetable farm, vertical vegetable planting and hydroponic system, and Internet-of-Things LED lighting control technology were set up here.

Partnering grocery stores to drive consumer purchases

SFA collaborated with NTUC FairPrice and Cold Storage to organise quarterly consumer promotions, produce in-store branding materials, and/or take out newspaper advertisements to highlight the merits of local produce.

At the 'Made in Singapore' Fair at Ang Mo Kio Hub's FairPrice Xtra, as well as other events in various Cold Storage, Prime Food, and Grocer supermarket outlets, cooking demonstrations and sample tastings were conducted. SFA also collaborated with the JEM's FairPrice Xtra to organise collateral giveaways to encourage purchase of local produce.

To expand consumer reach and make local produce more easily available via e-commerce, SFA supported SAFE's initiative to create a dedicated e-SG Farmers' Market page on the Lazada RedMart website/mobile phone app. As at the end of the FY, there were about 20 farmers selling up to 100 local produce items on the e-SG Farmers' Market page.



Providing assurance to retailers and consumers

In FY 2019, there were four Good Aquaculture Practice for Fish Farming (GAP-FF) certified farms, eight Good Agricultural Practice for Vegetable Farming (GAP-VF) certified farms, and three Singapore Quality Egg Scheme (SQES) certified farms. These schemes provide assurance to retailers and consumers by setting benchmarks for the production of safe and good quality local produce.

The 'Singapore Standard (SS) 632: Specification for organic primary produce' is the world's first national standard for organic primary produce grown in urban and peri-urban environments. The Singapore Manufacturers Federation – Standards Development Organisation (SMF-SDO) developed this Standard with SFA as a stakeholder. In June 2019, the first SS 632 certificate was presented to Sky Greens Pte. Ltd, which aims to use it as a springboard for its organic produce to gain market access.

Educating young minds through school activities

In FY 2019, SFA engaged with primary school science teachers as well as secondary school geography and nutrition and food science educators with the objective of enhancing their knowledge of food security issues. SFA delivered presentations on Singapore's food security during the various teacher seminars organised by the Ministry of Education. Educational exhibits on food safety and food security complemented these presentations.

We also supported the Singapore Young Farmers' 'Growing Roots' (GR) initiative to develop a GR handbook along with digital content to promote agri-food education, heritage, and culture among lower secondary students. Assembly talks at local secondary schools were planned for FY 2020.



During the FY, four learning journeys to various local farms were conducted, including those arranged for student participants in the Pre-university Seminar 2019 and N.E.mation! 2020. The latter is an annual digital animation competition that introduces farming in alternative spaces as a strategy to enhance Singapore's food security. We also hosted 12 learning journeys to MAC where 180 students, teachers, and members of public learned about the R&D efforts and techniques that enable the large-scale production of food fish.

BASKET 3: GROWING OVERSEAS

SFA supports Singapore companies in exporting urban food solutions to other countries, so that our companies can tap into land and manpower resources at lower production costs. At the same time, this enables them to break into new markets. Taken together with the local demand, our companies will enjoy greater economies of scale and be able to compete based on research and innovation.

All these will further contribute to Singapore's food security. Together with MEVR, SFA is working with the Ministry of Trade and Industry to help local companies venture and expand overseas. The objective is to build inter-dependencies with reliable countries and cultivate them into strategic partners for Singapore's food supply. To date, local farms have ventured into Australia, Brunei, Hong Kong, Thailand, and China.





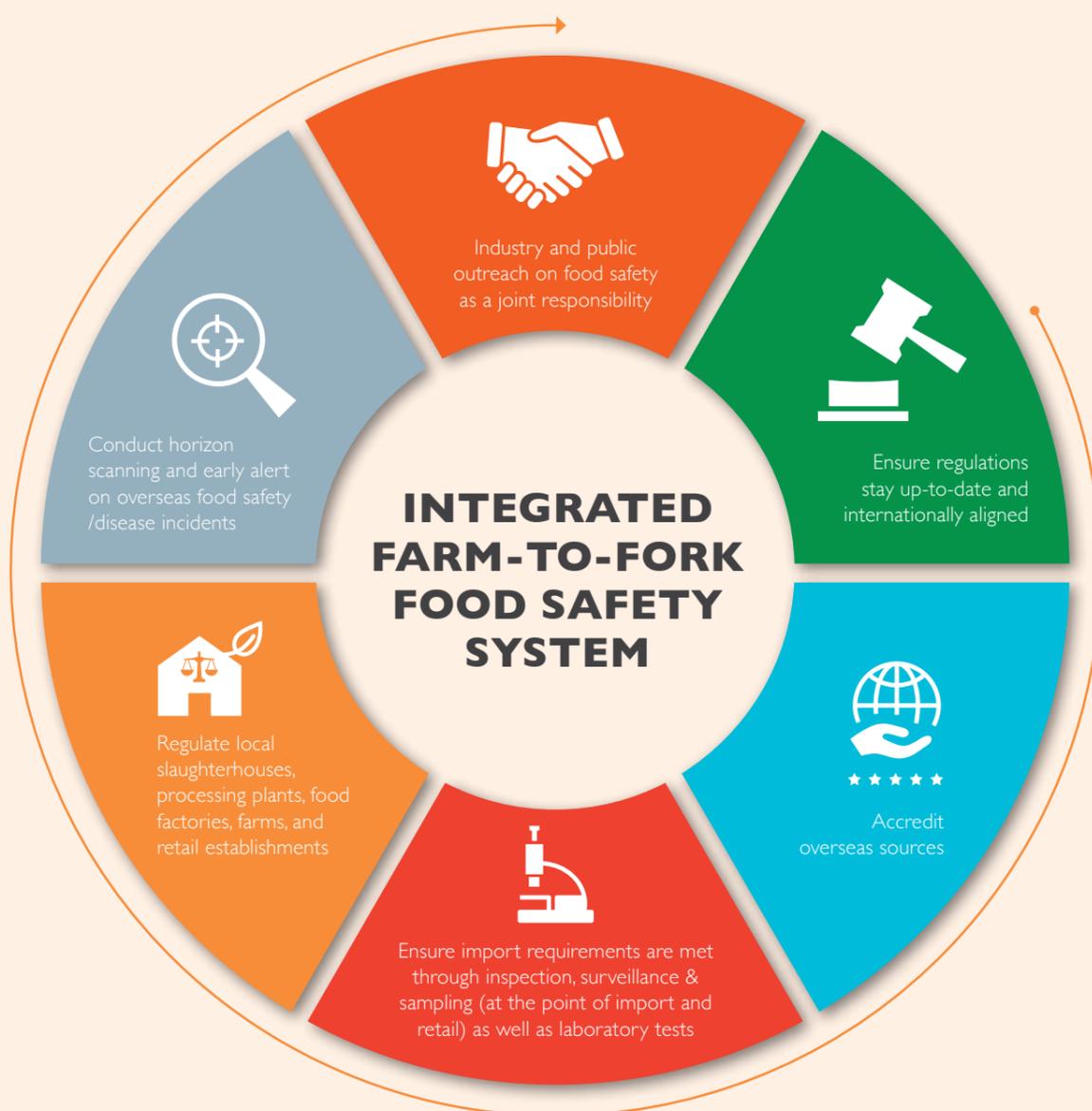
**ENSURING SAFE
FOOD FOR ALL**

**BY NO
MEANS A
PIECE OF
CAKE**

FOOD SAFETY IS A PREREQUISITE FOR A RESILIENT FOOD SUPPLY.

Food goes through a long and complex supply chain before it reaches consumers. Whether the food is imported or produced locally, exposure to hazardous agents and contamination can occur anywhere along this chain. A robust food safety system is vital in ensuring the huge volumes of imported food and variety of food produced locally are safe.

As Singapore's food safety authority, SFA adopts a risk-based approach to food safety. This approach is guided by science and consistent with international standards. An integrated food safety system from farm to fork is put in place to ensure that food is safe for consumption. As food safety is a joint responsibility, we also work with the industry and educate consumers to enable them to play their parts in the joint responsibility of food safety.



REGULATING FOOD SAFETY

SFA uses science and data analysis to assess the level of food safety risks posed along the farm-to-fork supply chain. Based on this assessment, appropriate risk management measures are implemented in our regulatory regime to reduce and mitigate foodborne risks.

Such a regulatory regime involves the setting of internationally or regionally aligned standards, and the establishment of controls at critical nodes of the food supply chain. Besides regulatory levers such as licensing, inspection, and enforcement, we also put in place anticipatory and response mechanisms to manage food safety incidents.

In addition to safeguarding the well-being of Singaporeans, a comprehensive and effective food safety regulatory regime is fundamental to Singapore's global reputation as a trusted brand for food safety. This in turn promotes international acceptance of food standards, food exports, and sustainable urban food solutions developed by Singapore.

Setting national standards

SFA keeps abreast of developments in standard-setting and represents Singapore at regional and international platforms. We coordinate and formulate national positions for food-related issues discussed at the Codex Alimentarius Commission, World Organisation for Animal Health (OIE), and International Plant Protection Convention.

SFA's food safety regulatory requirements are benchmarked against Codex Alimentarius Commission's standards, guidelines, and recommendations to facilitate international food trade while protecting public health. In FY 2019, the 42nd Codex Alimentarius Commission adopted 10 new and revised standards, which SFA will take into consideration as part of our regular reviews of SFA's Food Regulations.

In addition to these international forums, SFA participates in various ASEAN working groups under the ASEAN Economic Ministers Meeting (AEM) and ASEAN Ministers Meeting on Agriculture and Forestry (AMAF), to promulgate ASEAN safety standards for the food and agriculture sector.

Taking global standards and Singapore's needs into consideration, SFA consistently reviews its legislations and regulations to ensure they are effective and efficient. An up-to-date regulatory regime also enables us to facilitate imports and perform our enforcement duties as the national guardian of food safety.



Developing a regulatory framework for novel food

SFA implemented a new regulatory framework for novel food during the FY - companies that intend to sell novel food were now required to seek SFA's approval and undergo a scientific pre-market assessment. A guidance document was provided to help industry members better understand SFA's requirements regarding safety assessments, as well as the application process of novel foods.

As novel food is an evolving area, the document will be periodically updated and revised. SFA also formally appointed an expert working group in March 2020 to provide scientific advice on food safety. Chaired by SFA Board member and Duke-NUS Professor John Lim, the expert working group comprises a multidisciplinary team of specialists from the National University of Singapore, Nanyang Technological University Singapore, A*STAR, Health Promotion Board, and Ministry of Health.



Reviewing egg import conditions

Food that is imported from one dominant source is vulnerable to supply disruptions. Egg are one such item. SFA continues to step up both its facilitative and regulatory roles to help importers explore additional non-traditional sources that meet our food safety requirements.

To open up more possibilities of egg import sources, SFA put in place regulatory frameworks in FY 2019 for pasteurised shell eggs and previously prohibited free-range shell eggs to be brought into Singapore.

In August 2019, a new set of veterinary import conditions for the import of pasteurised shell eggs was drawn up and published. These pasteurised shell eggs must undergo an in-shell heat treatment that is sufficient to kill salmonella bacteria. In addition, such eggs can only be imported from SFA-approved sources. These safeguards will ensure that eggs from sources that are not free from salmonella do not compromise food safety.

During the FY, SFA also approved free-range shell eggs from Australia, Denmark, and New Zealand to be imported into Singapore. These may only be imported from layer farms that have been assessed and approved by SFA specifically for free-range shell eggs. The import conditions for free-range eggs from Australia are the same as existing ones for caged/barn eggs.



Updating infant formula labelling requirements

Following public consultation in 2017, SFA amended the labelling requirements for infant formula to align with international recommendations on breastfeeding. The Food (Amendment No. 2) Regulations 2019, which came into operation on 1 September 2019, were made to:

- Prohibit non-validated health claims (i.e. claims that state or imply a relationship between a food or its ingredients and health outcomes).
- Prohibit nutrition claims on essential nutrients stipulated in the food regulations, as well as general statements on nutrition (e.g. statements claiming that a product is "nutritionally complete").
- Prohibit texts and images that idealise the use of infant formula.
- Mandate a statement on the superiority of breastfeeding.

Controlling food imports

With the large quantities of food including perishables coming into Singapore daily, it is not practical to inspect and test all food in the market. To maintain food safety standards in Singapore, SFA adopts a science-based, internationally aligned approach to manage risks. This means foods of higher risks are subjected to more stringent checks. During the FY, SFA continued to impose farm-to-fork control measures to mitigate food safety risks.

Accrediting food sources

High-risk foods are more susceptible to foodborne diseases. Accreditation at source is required for livestock, meat, and egg items that can carry animal-borne diseases. SFA's source accreditation programme assesses food importers on two levels to ensure these imports meet our food safety and animal health import requirements.

At the 'country' level, we ascertain the robustness of animal health and food safety systems there. At the 'farm/establishment' level, biosecurity measures, farm management, manufacturing, and hygiene practices are verified. In the event of a breach in food safety or animal health standards by the approved country or accredited farm/establishment, SFA will be able to take targeted enforcement actions, such as suspension of import from specific farms or establishments.

In FY 2019, an additional 67 establishments and 16 farms were allowed to export food to Singapore.

ACCREDITATION OF OVERSEAS FOOD SOURCES

(FY 2019)

40

Countries approved

67

Establishments accredited



16

Farms accredited

3

Farms reinstated

12

Farms suspended

41

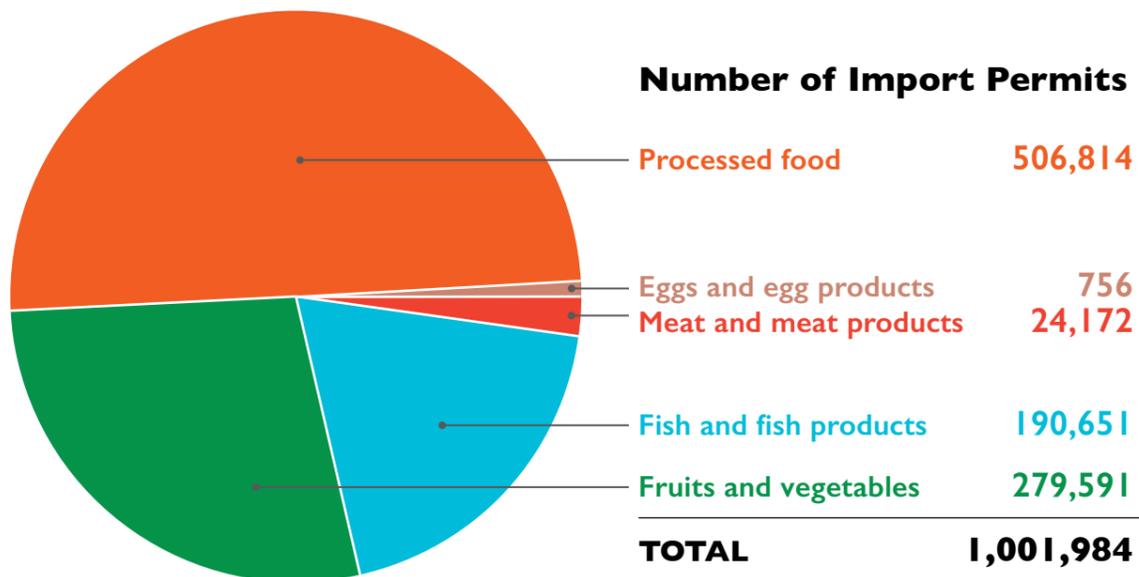
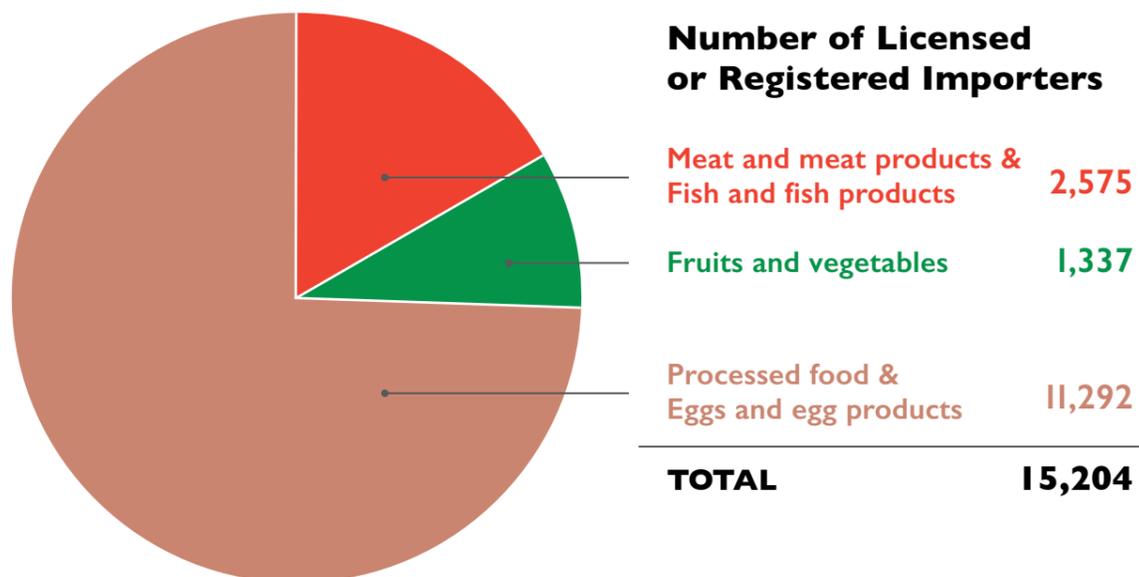
Farms & establishments inspected

Regulating importers

Food importers are required to apply for import permits for each consignment of food imported into Singapore. Every consignment of food has to be declared and accompanied by valid import permit(s). This ensures accountability, food traceability, and food recalls if infringements are found. In FY 2019, we issued more than one million import permits to about 15,000 licensed or registered importers.

LICENSING AND REGISTRATION OF IMPORTERS

(FY 2019)



It is the responsibility of the industry to bring in food from reliable sources that meet our food safety standards and requirements. On the part of SFA, regular inspections are conducted and samples are tested for pathogens, chemical contaminants, and drug residues.

During the FY, we inspected about 45,000 consignments. Out of the estimated 20,000 samples collected, an average of 95 percent passed our laboratory tests. When a sample fails our tests, SFA follows up with the importers with measures including rejecting the affected consignments and requiring importers to rectify the issue with their overseas suppliers.

IMPORTED FOOD: INSPECTION, SAMPLING, LABORATORY TESTS, COMPLIANCE RATES

(FY 2019)

Food type	Volume inspected* (tonnes)	Value inspected* (million)	Consignments inspected	Samples collected	Lab test pass rate (%)
Meat & meat products	110,645	480.6	30,330	9,159	98.53
Seafood products	3,757	51.9	2,405	1,671	94.97
Fruits & vegetables	1,643	2.9	7,054	5,009	88.06
Processed food	18,588	21.5	4,104	2,826	96.57
Processed eggs	5,918	26.2	1,207	1,124	98.13
Chicken & quail eggs#	348,992^	3.7	224	212	98.58

* rounded-up figures

^ unit is CEN, in hundreds

from July 2019 to March 2020

Clamping down on illegal imports

Illegally imported food products pose food safety risks. Enforcement action, such as composition fines, suspension of licences, and prosecution in court will be taken. Offenders are liable upon conviction to a maximum fine of \$50,000 and/or imprisonment for a term not exceeding two years. In FY 2019, SFA issued 78 warnings and 28 compound fines for cases of illegal imports. In addition, 17 cases were prosecuted in court.



MEAT & MEAT PRODUCTS



FISH & FISH PRODUCTS



To prevent illegal food imports from entering Singapore, SFA conducts intensified and surprise checks in addition to our routine inspections. These checks require full unloading of consignments to uncover illegal food products.

In FY 2019, a total of 83 full unloading inspections involving 119 importers were conducted. Enforcement action was carried out on 123 cases of illegal food imports, with 21 (17%) of these cases arising from surprise checks.

EGG & EGG PRODUCTS



FRUITS & VEGETABLES



PROCESSED FOOD



KEEPING WATCH OVER LOCAL FOOD ESTABLISHMENTS

SFA licenses all farms and food establishments in Singapore, including slaughterhouses, food processing/manufacturing establishments, and food retail establishments. Food storage warehouses are registered.

LICENSING & REGISTRATION OF LOCAL FARMS & ESTABLISHMENTS

(FY 2019)

Type of establishment	No. of licences	No. of registrations
Farm	222	–
Processing/manufacturing	1,424	–
Central kitchen	252	–
Cold store	174	–
Retail	48,784	–
Warehouse	–	1,207

In addition, inspections are carried out to ensure that these establishments comply with licensing conditions and regulatory requirements, as well as observe proper biosecurity, food safety, and hygiene practices. In FY 2019, SFA inspected 222 local farms, 1,424 food processing/manufacturing establishments, and 48,784 food retail establishments.

Samples are also collected for a range of food safety tests. We follow up on any food safety infringements, including taking enforcement action and requiring operators to rectify the lapses. During the FY, a majority of samples from local farms (99%), slaughterhouses (97%), and food processing/manufacturing (98%) establishments passed our laboratory tests. For samples from food retail establishments and central kitchens, about 78 percent and 93 percent, respectively, passed our laboratory tests.

OVERALL INSPECTION, SAMPLING, LABORATORY TESTS AND COMPLIANCE RATES

(FY 2019)

Type of establishment	Licensees	Inspection visits conducted	Inspections detected with non-compliance	Samples collected	Lab test pass %
Local farms & processing/manufacturing establishments:					
Farm	222	2,835	10	1,131	99.20
Slaughterhouse	18	1,115	43	14,063	97.28
Processing/manufacturing	1,424	4,603	211	115	98.26
Total	1,664	8,553	264	15,309	
Local retail establishments & central kitchens:					
Central kitchen	252	791	77	61	93.44
Retail	48,784	70,713	1,799	357	78.43
Total	49,036	71,504	1,876	418	

Slaughterhouses

Imported livestock are inspected to prevent the introduction of diseases and to ensure that the meat is safe for human consumption. Samples are also taken for laboratory tests for foodborne disease agents, zoonotic diseases, and drug residues. In addition, SFA inspectors conduct checks to make sure that slaughterhouse premises comply with conditions of licensing and cold chain requirements, as well as observe good slaughtering and meat hygiene practices.

In FY 2019, we conducted 1,115 inspections at 18 local slaughterhouse establishments. In total, 14,063 samples were collected to test for foodborne pathogens, drug residues, and chemical contaminants.

SFA regularly engages with the industry to upgrade its competency. In FY 2019, SFA and the management of the local pig abattoir started a part-time meat hygiene inspection course to equip workers with knowledge on the anatomy and general pathological conditions in pigs. A total of nine abattoir workers embarked on the course during the FY.

Food storage warehouses

Food storage warehouses are registered with SFA. As at the end of FY 2019, there were 1,207 registered warehouses.

Food processing/manufacturing establishments

SFA conducts annual audit assessments on local food processing/manufacturing establishments to grade them based on their food hygiene and food safety standards. Areas of audit also include pest control, food handling and storage, traceability, staff competency, and documentation/record-keeping. SFA officers provide on-site advice to help them improve and upgrade their premises.

The grading of these establishments allows supermarkets and food retailers to identify reliable processors/manufacturers to source from. During the FY, a total of 4,603 inspections were conducted on 1,424 processing/manufacturing establishments.



Food retail establishments

With the formation of SFA and consolidation of previously separate food-related functions across then-Agri-food & Veterinary Authority, National Environment Agency (NEA), and the Health Sciences Authority (HSA), some 48,784 food retail licences from NEA were brought under the regulatory control of SFA. These licences cover various food retail establishments including food caterers, coffee shops, food courts, hawker and market stalls, canteens, restaurants, snack bars, cafes, supermarkets, and mobile food wagons.

Licensees are required to ensure the proper upkeep of their premises. It is also mandatory for all food handlers involved in the preparation and handling of food to pass the Basic Food Hygiene Course (BFHC) and be registered with SFA.

We carry out inspections at food retail establishments. The frequency of inspection is determined by the risk profile of the establishments, such as track record of past infringements, and the risk level of the food sold. In FY 2019, more than 70,000 inspections were conducted on retail establishments and central kitchens.

Enforcement actions are taken against errant licensees for hygiene infringements observed during inspections. Demerit points will then be issued based on the nature of these offences. Offenders face penalties such as suspension of operations or cancellation of licences. This system serves as a strong deterrent for repeat offenders. In FY 2019, a total of 52 food retail establishments were suspended.

Clamping down on illegal hawking

Illegal hawking of food poses risks to food safety. Sub-standard hygiene, handling, and storage practices by illegal hawkers can contaminate food with chemical and microbiological hazards. Additionally, the distribution network of the food sold by illegal hawkers is also unknown, which impedes tracing investigations in the event of a gastroenteritis outbreak.

SFA conducts surveillance at illegal hawking hotspots island wide and responds to public feedback on illegal hawking. Officers are deployed to various locations around Singapore, to facilitate prompt response to feedback received. In FY 2019, we issued 350 warnings and 117 composition fines. In total, 742 cases of illegal hawking activities were prosecuted.

Safeguarding against COVID-19 transmission

To help the food industry manage the risk of COVID-19 transmission while operating, in February 2020, SFA issued information on the additional precautionary measures employers can take at the workplace. At the same time, operators of food establishments were reminded to maintain high standards of hygiene and cleanliness to safeguard public health and public confidence.

In March 2020, stricter safe distancing measures were implemented by the government to minimise exposure to COVID-19. SFA-licensed F&B outlets were allowed to operate, provided that there was no provision of public entertainment of any kind.

Safe distancing measures were also enforced at JFP, SFP, and PPWC. To reduce mingling at these premises, only wholesale, distribution, and food-trade related personnel were allowed to enter. Affected customers were advised to arrange for delivery or purchase the goods from wet markets, supermarkets, and other retail points.



MANAGING FOOD SAFETY INCIDENTS

Food safety incidents can happen at any point along the food supply chain, and can be caused by microbiological (e.g. salmonella), chemical (e.g. pesticides, drug residues, additives, heavy metals), physical (e.g. glass or metal pieces), or allergenic (e.g. nuts) hazards. To effectively manage food safety incidents, it is critical to establish processes that allow us to respond in a timely and effective manner. Such processes include investigation as well as enforcement actions like suspension, fines, warnings, and recalls where necessary.

Investigating gastroenteritis incidents

SFA investigates gastroenteritis cases and suspected food safety lapses that occur in SFA-licensed food establishments. In the case of gastroenteritis, we take the One Health (OH) approach, in which the Ministry of Health (MOH) leads SFA and NEA in conducting joint investigations. During such joint investigations, SFA obtains food and environmental samples for laboratory testing.

In FY 2019, SFA participated in 42 joint OH investigations in SFA-licensed premises (e.g. restaurants and caterers), as well as non SFA-licensed premises such as pre-schools and their in-house kitchens.

MAJOR GASTROENTERITIS INCIDENTS

(FY 2019)

Foodborne causes	22
Non-foodborne causes (Likely person-to-person transmission/via contaminated surfaces)	9
Inconclusive	3
Pending	8
Total	42

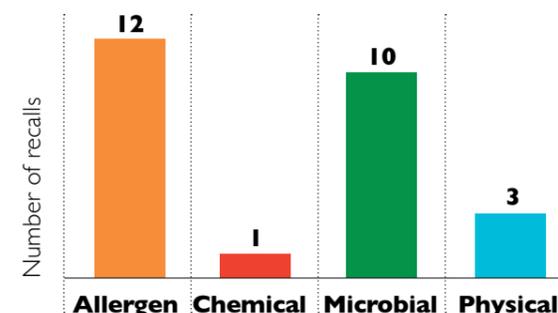
Preventing gastroenteritis incidents

A significant number of gastroenteritis incidents tend to occur during the festive October-March period, as more consumers dine out, order catered food, or purchase cooked/ready-to-eat food for celebrations. In view of this, SFA issued an advisory to the food retail industry in November 2019 to remind them to adhere to good hygiene practices during food preparation and handling. We also stepped up our inspection of licensees that provide catering services and premises with substantial catering operations during this period.

Following gastroenteritis incidents that broke out in preschools in early 2019, SFA worked with the Early Childhood Development Agency (ECDA) and MOH to jointly conduct briefing sessions for food handlers and cleaners in preschools to promote good personal, food, and environmental hygiene practices. Circulars were also issued to remind childcare centres operators and schools of the importance of maintaining high standards of food safety and hygiene.

FOOD RECALLS

(FY 2019)



Reason for recalls

Allergen - Undeclared allergens such as milk, egg, peanut, and almond
 Chemical - Pesticides and unauthorised additives
 Microbial - Bacteria (e.g. E.coli, Listeria) and viruses (e.g. norovirus)
 Physical - Foreign matters

Executing food recalls

Products that are found to be in breach of food safety requirements are recalled from retail outlets and food establishments. SFA works closely with food companies, relevant agencies, and our overseas counterparts in this process to trace affected batches. We also advise on measures to prevent recurrence of such incidents.

SFA also has the legislative power to swiftly effect food recalls when contamination is suspected. This ensures that the public is not subjected to unnecessary risks while investigations and testing are ongoing.

During the FY, a total of 26 recalls were conducted, due to allergen, chemical, microbial, and physical contaminations.

ENHANCING THE FOOD SAFETY SYSTEM

The formation of SFA allows for the integrated and harmonised oversight of food safety-related matters from farm to fork. With this new focus, we are rolling out enhancements to the food safety system under three key strategies of (1) recognising food safety performance, (2) improving food safety monitoring, and (3) strengthening industry competency in food safety.

Recognising food safety performance

SFA is working towards introducing a unified licensing and recognition framework for all retail and non-retail food establishments. This new framework will replace the annual grading and licence renewal system for food processing/manufacturing establishments, as well as the Food Hygiene Recognition Scheme for retail food establishments. As opposed to an annual grading audit, which provides a snapshot reflection of a food establishment's food safety and hygiene standards, the new framework will take into account the ongoing performance of food establishments.

Under this framework, food establishments that continuously maintain good track records of high food safety and hygiene standards will be recognised and awarded a longer licence duration.

In developing the integrated framework, SFA engaged with industry associations during FY 2019 and feedback was taken into consideration. SFA will continue to engage and work with the industry on the implementation of the framework.

Enabling the industry to enhance food safety monitoring

Even as SFA puts in place a regulatory system to ensure food safety, the industry has a joint responsibility in maintaining good food safety standards and upholding the safety of the food they offer to consumers. In FY 2019, SFA announced new requirements that will be rolled out in the next few years to encourage and enable the industry to play a greater role in food safety monitoring.

Installing closed-circuit television cameras

Premises such as caterers and central kitchens pose higher food safety risks, as they prepare and distribute large volumes of food. As part of the series of new requirements developed and announced by SFA in FY 2019, this group of licensees will be required to install closed-circuit television cameras (CCTVs).

With CCTV, food establishments will be able to better monitor their operations, and shape good behaviour among food handlers in complying with food safety and hygiene regulations. In the event of a gastroenteritis outbreak, SFA will obtain CCTV footage from implicated food establishments to facilitate investigations. During the FY, SFA began engaging with food manufacturers and food services associations on this new requirement.

Maintaining retention samples

In March 2020, SFA also announced that food establishments catering to vulnerable groups (e.g. preschools, nursing homes) will be required to maintain retention samples of the food they provide. In the event of a gastroenteritis outbreak, these food retention samples will be tested by SFA to facilitate investigations. SFA will continue to engage with the industry, and more details on the implementation and timeline will be made available at a later date.

Extending Food Safety Management System plan requirement to central kitchens

Currently, caterers and retail food establishments licensed to provide catering services are required to implement a Hazard Analysis Critical Control Point (HACCP)-based Food Safety Management System (FSMS) plan. SFA announced in March 2020 that this requirement will be extended to central kitchens providing catering services.

The FSMS plan is a preventive approach towards identifying, preventing, and reducing foodborne hazards, to ensure that food is safe for consumption. A well-designed FSMS with appropriate control measures can help food establishments comply with food hygiene regulations effectively, so that food prepared for sale is hygienic.

Strengthening industry competency in food safety

A competent, appropriately trained workforce is required to support the adoption of systems and processes for better food safety assurance by the food industry. In FY 2019, SFA announced that it will enhance the competency and training framework to upskill the food industry workforce in food safety and hygiene. We will also harmonise training requirements and course curriculum across the food industry.

Enhancing Food Hygiene Officer framework

Licensees of food retail businesses that are involved in large-scale food preparation and with multiple food stalls are required to appoint a Food Hygiene Officer (FHO) to reinforce hygiene and sanitation standards in the licensed premises. The appointed staff has to pass the Conduct Food & Beverage Hygiene Audit Course to qualify as an FHO.

In FY 2019, SFA developed a training framework to upgrade the competency of FHOs, and allow them to upskill and progress to Advanced FHOs. Advanced FHOs, who are required to have a higher competency, will be trained to develop and implement pre-requisite programmes and HACCP-based FSMS at their food establishments to minimise food safety risks. They will also be equipped with the skills to conduct internal audits on the implemented systems.

Harmonising training framework

Currently, all food handlers at retail food establishments are required to attend and pass the Basic Food Hygiene Course (BFHC), which covers key topics such as personal hygiene, proper food handling, and storage. In FY 2019, SFA embarked on revising the BFHC curriculum, which will also be extended to non-retail food establishments when it is rolled out in late 2020.

Auditing food retail establishments for “SG Clean” quality mark

To elevate good hygiene practices to a national level, the NEA, together with SFA, the Enterprise Singapore, ECDA, MOE, Singapore Tourism Board, and Ministry of Transport, rallies various sectors to commit to upholding good sanitation and hygiene practices, through the “SG Clean” campaign.

Under the campaign, the “SG Clean” quality mark is progressively rolled out to various sectors, starting with hawker centres. Stakeholders commit and adhere to sector-specific sanitation and hygiene checklists, covering areas such as management oversight, cleaning methodology, toilet cleanliness, and general public hygiene.

SFA began auditing hawker stalls, coffee shops, and canteens under this campaign in FY 2019. An “SG Clean” quality mark was awarded to premises that complied with the respective checklists. As the end of FY 2019 a total of 4,033 hawker and market stalls, 819 coffee shop stalls, and 229 canteens received the “SG Clean” quality mark.

MONITORING AND TESTING FOR FOOD SAFETY

SFA’s National Centre of Food Science (NCFS) is the national reference laboratory on food science. It plays a crucial role in the enforcement of Singapore’s food safety regulations and conducts food safety monitoring to generate scientific data for risk assessment. Our application of science and technology enables us to address emerging food safety and security concerns with an evidence-based approach.

NCFS also plays a regional and international role as the OIE Collaborating Centre for Food Safety, the WHO Collaborating Centre for Food Contamination Monitoring, and ASEAN Food Reference Laboratories in multiple food safety testing areas. We lend our expertise in various capacity-building programmes that strengthen the technical competency of local, regional, and international food testing laboratories.

NCFS is formed through the consolidation of food safety laboratory expertise that were previously under HSA and then-AVA. To bring these laboratories under one roof, a new NCFS facility will be set up in a commercial space, which SFA secured at the International Business Park in FY 2019.



Enhancing testing & diagnostic capabilities

NCFS provides scientific expertise in food safety by performing in-depth applied research, risk assessment studies, data analytics, and laboratory diagnosis. In FY 2019, about 158,000 laboratory tests on close to 44,000 samples of food were conducted at NCFS. It also continued to provide testing services to support the investigation of foodborne disease outbreaks.

VOLUME OF TESTS PERFORMED AT NCFS

(FY 2019)

Functions	Export	Import Control	Surveillance	Commercial	Total
Samples tested	2,310	28,612	10,196	2,773	43,891
Laboratory tests performed	9,842	169,954	70,152	7,781	257,729
Results obtained	13,451	1,522,756	606,010	25,703	2,167,920

NCFS's work is underpinned by a commitment to maintaining high laboratory testing standards. During the FY, we consolidated the quality systems of the laboratories previously managed by the then-Agriculture & Veterinary Authority and HSA. The transition from ISO/IEC 17025:2005 to ISO/IEC 17025:17 was successfully completed. As at 31 March 2019, NCFS attained accreditation for a total of 380 tests, including 14 new ones accredited (Table 1) in FY 2019.

NCFS also participates in inter-laboratory proficiency (ILP) testing programmes. These programmes assess the laboratory's effectiveness in discerning parasites, pathogens, toxins, chemical contaminants, additives, preservatives, allergens, nutritional components, drug residues, and pesticide residues, amongst others, in food. In FY 2019, NCFS participated and performed well in 94 proficiency test rounds under 14 proficiency testing schemes administered by reputable international, regional, and local ILP scheme providers including:

- ASEAN Food Reference Laboratories
- Asia-Pacific Economic Cooperation
- Asia-Pacific Laboratory Accreditation Cooperation
- Centre for Environment, Fisheries & Aquaculture Science (UK)
- Eurofins Scientific (France)
- European Union reference Laboratory (EU)
- FERA Science Food and Agriculture Organisation of the United Nation (UK)
- Global Proficiency Limited (New Zealand)
- HSA
- Institute of Food Safety of Wageningen University & Research (the Netherlands)
- International Atomic Energy Agency
- Office of Texas State Chemist – Texas A&M AgriLife Research (FAO, US)
- Public Health England (UK)
- US Department of Agriculture (US)

NCFS is committed to continually develop and improve our testing capabilities. Such improvements help us to keep pace with newly emerging chemical and microbiological hazards that may be present in food. In FY 2019, 12 additional methods were developed to establish new testing capabilities (Table 2). In addition, 15 key enhancements were made to existing methods to improve accuracy and turnaround time (Table 3).

Table 1: Tests accredited by SAC-SINGLAS (FY 2019)

Chemical Tests

- Bisphenol A in baby milk bottle using LC-MS/MS
- Cadmium, lead and copper in general food products using AAS
- Mercury in seawater using AAS
- Multiple pesticide residues in processed food (including milk, milk products, cereal and products, tea and products) using GC-MS/MS and LC-MS/MS
- Bacillus Cereus Enterotoxins in processed foods using RPLA

Biological Tests

- Campylobacter spp. count in poultry using culture
- Campylobacter jejuni, coli, lari in poultry using swabs with Amires gel with charcoal
- Salmonella spp. in poultry using swabs with Cary Blair Agar
- Salmonella spp. in whole shell eggs using real-time PCR
- Salmonella spp. in processed eggs using real-time PCR
- Staphylococcal Enterotoxins in processed foods using ELISA
- Enterobacteriaceae count in all food samples using culture
- CV127 Soya DNA in food and feed (raw and processed) using real-time PCR
- Vancomycin-Resistant Enterococci in poultry using swabs with Cary Blair Agar

In addition, NCFS continued to conduct R&D on emerging food contaminants. During the FY, efforts were focused on nanomaterial testing and in the field of antimicrobial resistance (AMR). In FY 2019, NCFS completed the development and validation of tests to detect and characterise nanoparticles in food, through the use of Asymmetric Flow Field Flow Fractionation ICP-MS and Single-Particle ICP-MS. The scope of nanoparticle analysis was also expanded, with our procurement of advanced instrumentation such as the Centrifugal Field Flow Fractionation ICP-MS/MS.

Through collaboration with other government agencies and academia, NCFS continued to spearhead policy-driven research studies to understand the epidemiology of AMR pathogens across the food chain and to elucidate their transmission pathway from the One Health perspective. In FY 2019, NCFS published three peer-reviewed research articles on AMR and represented SFA in the AMR Research Grant Scientific Panel as part of the One Health AMR Joint Research Programme.

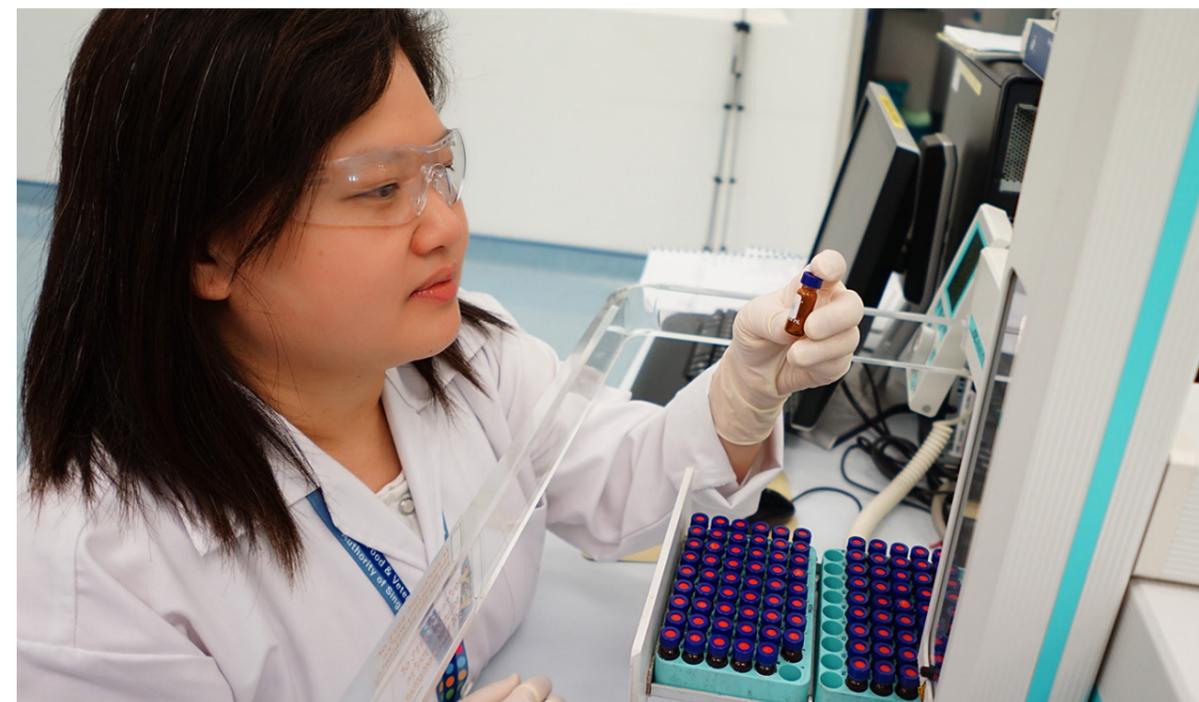


Table 2: New capabilities developed and improved by NCFS (FY 2019)

Food contaminants

- Radioactive Strontium-90 in milk using microwave digestion - Liquid Scintillation Technique
- Highly polar Organophosphorus pesticide residues- Glyphosate, AMPA, Glufosinate and Ethephon using LC-MS/MS
- Avermectins in seafood using LC-MS/MS
- Stilbenes in pork using LC-MS/MS
- Hormones in pork using LC-MS/MS
- Emetic Toxins (Cereulide) in food using LC-MS/MS
- Cadmium in food using dry ashing and AAS
- PCDD/Fs, Dioxin-like PCBs and Indicator PCBs in seafood using GC-MS/MS
- Ethanol in low/non-alcoholic drinks using headspace GC-FID

Food authentication

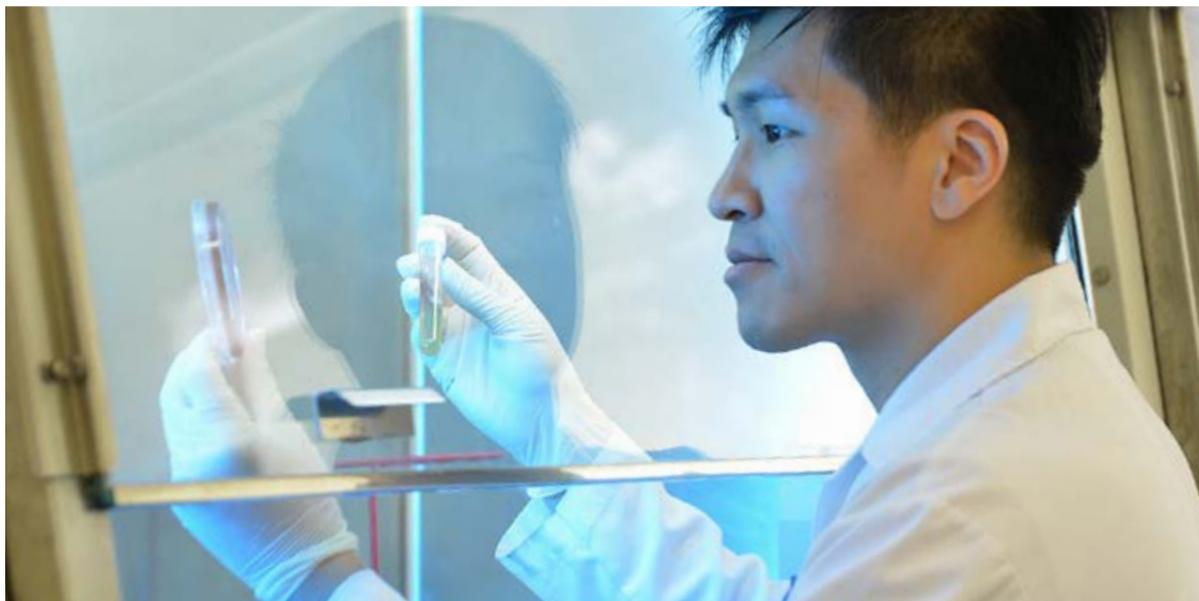
- Quantitative meat speciation using real-time PCR

Food contact materials

- Hydrogen Peroxide in simulants using Colourimetry
- Migration of Chloride in 50% Ethanol and olive oil using IC

Table 3: Key enhancements made by NCFS (FY 2019)

- Bromate in drinking water using LC-MS/MS
- Cyanide in drinking water using Colorimetric method
- Heavy metals in food and water using ICP-MS
- Inorganic arsenic in food using ICP-MS
- Mercury in food using ICP-MS
- Migration of Caprolactam & Lauroctam from nylon packaging materials into meat products using LC-MS/MS
- Morphine in poppy seed products using LC-MS/MS
- Non-permitted colours in general food products using LC-MS/MS
- Okadaic acid, Domoic acid, Brevetoxin 2 and 3 in seafood using LC-MS/MS
- Plasticisers in beverages using GC-MS
- Norovirus in shellfish using real-time PCR
- Streptococcus agalactiae in raw chilled/frozen fish using PCR
- Total Chromium and Nickel in seafood, cereal and soft drinks using ICP-MS
- Triphenylmethane dyes and Metabolites in seafood using LC-MS/MS
- Vinyl Chloride Monomer in plastic containers/ plastic film using GC



Assessing risk and analysing data

To monitor trends in the microbiological quality of retail food, NCFS introduced an annual risk-based food hygiene monitoring programme in FY 2019. A total of 2,452 food samples were collected for non-regulatory testing and trend analysis. Through data analysis, we identified high-risk food types that had unsatisfactory track records. The findings and trends on the microbiological safety of retail food were presented to stakeholders (members of food services association, coffee shops, and food courts) to heighten their food safety awareness. As part of NCFS' contribution to scientific sharing, we also presented these food safety trends to local and international regulatory and scientific communities.

Together with One Health partners, NCFS analysed laboratory and epidemiological data to support SFA's operations in foodborne disease surveillance, outbreak investigation, and response. In addition, in FY 2019, NCFS spearheaded the analysis of feedback on food poisoning received, on top of data from One Health sources. As a result, we were able to make use of data analytics to better target enforcement efforts on the detection of hygiene violations.

In addition to its food safety monitoring and data science work, SFA conducted dietary exposure assessment arising from food safety concerns. During the FY, SFA assessments on heavy metals in cockles and polycyclic aromatic hydrocarbons (PAH) in garlins were carried out. We found that the exposure to mercury, lead, and cadmium from the consumption of cockles is unlikely to pose adverse health effects. It is also unlikely for PAH in garlins to cause acute health effects.

In support of risk and scientific communication, we contributed our findings to four peer-review journal publications covering topics such as the surveillance and risk assessment of foodborne pathogens and the application of genome sequencing and analysis for food safety and AMR. NCFS also published a total of eight peer-reviewed journal articles on Salmonella, Streptococcus agalactiae Sequence Type 283, Hepatitis E, and antimicrobial resistance in bacteria. In addition, we gave more than 20 presentations in various conferences and events.

Recognising private laboratories for food safety testing

In November 2019, SFA rolled out its Laboratory Recognition Programme (LRP), which recognises private laboratories for their capabilities in providing food safety testing services to the food industry. Recognised laboratories will undergo annual on-site verification and proficiency testing programmes. Through these efforts, LRP serves to ensure the quality of test results produced by the recognised laboratories, and raise their food testing capabilities.

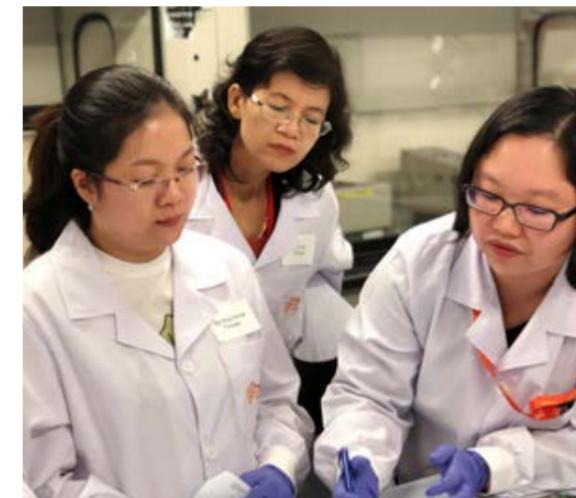
As at the end of the FY, 12 private testing laboratories were recognised under LRP. The food industry can engage testing services from this list of SFA's recognised private laboratories to meet its food testing needs, that is in-house quality testing and export certificate testing.

The LRP initiative was presented with the Minister Award for Excellent Service (Team) at the Minister of Environment and Water Resources (MEWR) Excellence Day 2020.

Collaborating with local and international experts

NCFS partners with various research institutes (RIs), institutes of higher learning (IHLs), and overseas food safety organisations in food safety-related research. Some research collaborations we embarked on during the FY included:

- Development of a 3D-RHE intestine model and co-culture system to assess the potential risk of nanogenotoxicity (A*STAR, Nanyang Technological University)
- Assessment of the threat of a previously unknown foodborne pathogen (Group B Streptococcus) to the safety and resiliency of the food supply in Singapore (National University of Singapore, NEA, KK Women's and Children's Hospital, Tan Tock Seng Hospital, Ng Teng Fong General Hospital, Singapore General Hospital, Changi General Hospital, Alexandra Health, National University Health System)
- Co-development of foodborne pathogen and toxins detection systems (A*STAR)
- Enhancement of food safety and supporting regional authentication of foodstuffs through implementation of nuclear techniques (FAO/IAEA)
- Field-deployable analytical methods to assess the authenticity, safety and quality of food (FAO/IAEA)



Building regional/international capacity

As an OIE Collaborating Centre for Food Safety and the ASEAN Food Reference Laboratory for Environmental Contaminants, Pesticides, Mycotoxins, as well as Marine Biotoxins and Scombrotoxin, NCFS continued to collaborate with international and local experts in enhancing laboratory testing capabilities in the region. In collaboration with ASEAN and the Global Food Safety Partnership, NCFS conducted laboratory trainings on the following for overseas participants during the FY:

- Pesticide residues analysis
- Detection of total mercury for fish products by cold vapour AAS
- Testing and risk assessment of veterinary drug residues in aquaculture products
- Detection of aflatoxins B & G in nuts and cereal.

In addition, three ASEAN proficiency testing programmes were organised by NCFS:

- Aflatoxins B in maize
- Benzo(a)pyrene in olive oil
- Multi-pesticide residues in French beans.

PROMOTING JOINT RESPONSIBILITY IN FOOD SAFETY

While SFA puts in place a regulatory system and enabling environment to ensure food safety, the food industry must maintain good food safety standards and be responsible for the safety of the food they offer to consumers. In addition, consumers have a role to play by adhering to good food safety and hygiene practices, as well as making informed decisions. During the FY, SFA continued to work with the industry and engage with the public to promote joint responsibility in food safety.

Working with the industry

To engage with the industry and to strengthen the food safety system, dialogue sessions with food manufacturers and food services associations were conducted in FY 2019. Discussions covered topics such as enhancements to food

safety regulatory oversight, recognition of food safety performance, and the building of industry competence in food safety.

In May 2019, a visioning exercise brought 150 industry stakeholders together to chart the future of the food industry. Three strategic initiatives were identified, namely: (1) improving trust and visibility of supply chain; (2) promoting Singapore standards and harmonising across industry and ASEAN; and (3) raising public awareness of local food production. Following that, focus group discussions were held to deep-dive into some of the suggestions raised during the exercise. This initiative won the MEWR Citizen Engagement Award, which recognises agency-level initiatives that have gone the extra mile to understand and engage with citizens or businesses.



Educating the public

Consumers have an important role to play in ensuring food safety, as they have direct control over the food they buy, handle, prepare, and consume. In addition, consumers should equip themselves with knowledge of food safety risks and good food safety practices.

In FY 2019, SFA conducted 15 food safety talks in schools, and brought pre-schoolers on six learning journeys to supermarkets. In conjunction with World Food Safety Day, we collaborated with two pre-school centres to teach these children to protect their own well-being by observing food safety tips. At the APSN Katong School's Learning Festival, we engaged with over 200 primary and secondary school students to impart knowledge of safe food practices through games and Oscar, our food safety mascot.

In view of the festive season between October and March where gastroenteritis incidents may increase, we issued advisories to remind food operators and consumers to be vigilant and practise good food, personal and environmental hygiene. Consumers were advised to make informed choices when choosing the food establishment to patronise or engage, by finding out the establishment's track records on SFA's website.

As part of risk communication, a series of regular articles and infographics were published on SFA's website and social media platforms to educate consumers on common food hazards, as well as SFA's inspection and enforcement efforts. To build public awareness for antimicrobial resistance awareness (AMR), SFA developed an animation video about reducing the occurrence of AMR in food.

Understanding consumers' views on food safety

A food safety survey was initiated in December 2019 by SFA to gain insights into consumers' knowledge and attitudes towards food safety, food recalls, food labels, and advertising claims. The survey would also study the factors influencing consumers' decision in dining out. The findings would be used to guide our development and formulation of regulatory policies, and form, the baseline for the development of our public education content on food safety.

**STRENGTHENING
INTERNATIONAL
RELATIONS**

BEEFING UP GLOBAL TIES

STRATEGIC INTERNATIONAL ENGAGEMENTS SAFEGUARD OUR INTERESTS IN FOOD SECURITY.

We maintain close ties with the international community in the spirit of exchange and collaboration. During the FY, we continued to safeguard and advance Singapore's interests, collaborate on capacity building, and contribute to regional developments in food security.

COLLABORATING WITH AUSTRALIA AND NEW ZEALAND ON FOOD SAFETY

On 23 March 2020, SFA signed a Memorandum of Understanding (MOU) with Food Standards Australia New Zealand (an independent statutory agency), together with Enterprise Singapore (ESG). The agreement will see all parties collaborating on food safety programmes and standards in areas of mutual interest, including risk assessment of novel foods and food additives, as well as the identification of emerging food issues.

SUPPORTING GLOBAL COOPERATION IN FOOD SAFETY CAPACITY BUILDING

Singapore is a member of the World Bank's Global Food Safety Partnership (GFSP), which supports and promotes international cooperation in food safety capacity building. During the FY, SFA worked with GFSP to conduct workshops to introduce Singapore's food safety regulatory systems, exchange views on food safety initiatives, and build food safety testing capabilities.

In September 2019, we joined the GFSP Governing Committee as an observer member, which allowed us to gain greater influence in the development of global food safety standards. Through networking with global food safety experts and key opinion leaders, we profile Singapore and SFA's expertise in food safety.

In addition, under the auspices of the Singapore-United Nations Food and Agriculture Organisation (FAO) MOU, SFA conducted a workshop on Laboratory Testing and Risk Assessment of Veterinary Drug Residues in Aquaculture Products in December 2019. In collaboration with ASEAN and FAO, we facilitated knowledge sharing on various aquaculture food safety action plans and regulations. Relevant practical demonstrations and discussions were also included as part of the workshop.



PARTICIPATING IN KEY MEETINGS FOR BETTER POLICY MAKING AND PLANNING

SFA participates in key global and regional forums to keep abreast of food security issues. This allows us to gain insights and receive updates on new developments that can better inform policy making and planning. Bilateral meetings are also held to facilitate agri-trade and foster warm relations.



In addition to representing Singapore at the following key meetings, we continued to build cross-border ties via ongoing platforms such as the Singapore-Brunei Joint Working Group, Singapore-New Zealand Enhanced Partnership, and Singapore-Australia Comprehensive Strategic Partnership:

Apr 2019	FAO/World Health Organization (WHO)/World Trade Organization (WTO) International Forum on Food Safety and Trade
Jun 2019	FAO First World Food Safety Day
	41 st FAO Conference
Aug 2019	21 st Singapore-Malaysia Bilateral Meeting on Agriculture
	Special Senior Officials Meeting (SOM) for the 40 th ASEAN Ministers for Agriculture and Forestry (AMAF), Special SOM 18 th AMAF Plus Three and Related Meetings
Sep 2019	Asia-Pacific Economic Cooperation (APEC) Food Security Ministerial Meeting
	15 th Singapore-Indonesia Agri-business Working Group Meeting
Sep-Oct 2019	7 th Singapore-Myanmar Joint Ministerial Working Committee Meeting
Sep-Oct 2019	Preparatory-SOM 41 st AMAF, 19 th SOM-AMAF Plus Three, 41 st AMAF and 19 th AMAF Plus Three meetings
Oct 2019	46 th Session of the FAO Committee on World Food Security
Jan 2020	G20 1 st Agriculture Deputies Meeting

WORKING WITH ASEAN COUNTERPARTS.

SFA works closely with ASEAN counterparts in enhancing regional cooperation and facilitating free movement of safe food products. The meetings, discussions, and trainings via various collaborative projects provide opportunities for Singapore to reinforce ties with fellow ASEAN members.



MEETING OF THE PREPARED FOODSTUFF PRODUCT WORKING GROUP

SFA organised the 29th Meeting of the Prepared Foodstuff Product Working Group (PFPWG) and its Related Meetings from 18 to 22 November 2019. The meetings centred on topics such as harmonisation of food safety standards, inspection and certification systems, laboratory and proficiency testing capabilities, and strengthening of the food control system from farm to table.

MEETING OF THE ASEAN SECTORAL WORKING GROUP ON CROPS

SFA hosted and chaired the 26th Meeting of the ASEAN Sectoral Working Group on Crops (ASWGC) in July 2019. Through the ASWGC's strong network of regional partners and the various initiatives on crops, ASEAN members have been able to leverage each other's strengths and expertise, while working towards improving the sustainability of our food production systems and contributing to regional food security. As part of the meeting, delegates visited Citiponics Farm, Singapore's first commercial rooftop farm on top of a Housing & Development Board (HDB) multi-storey carpark.

MEETING OF AARNET STEERING COMMITTEE

SFA chairs the ASEAN-AVRDC Regional Network for Vegetable Research and Development (AARNET). In April 2019, we headed the 14th AARNET Steering Committee Meeting, which deliberated on projects covering germplasm diversity; protected cultivation; biopesticide/biocontrol; and the South American leafminer, *Tuta absoluta*. Members agreed to submit proposals for funding consideration.



FINALISING ASEAN PROJECT ON BIOTOXINS AND HARMFUL ALGAL BLOOMS

SFA's MAC is the collaborating centre of the Southeast Asian Fisheries Development Centre (SEAFDEC). It promotes post-harvest technology development in regional fisheries, by implementing activities under SEAFDEC's Marine Fisheries Research Department (MFRD) programmes.

On 14-15 August 2019, SFA hosted the finalisation meeting for MFRD's research project titled "Chemical and Drug Residues in Fish and Fish Products in Southeast Asia – Biotoxins (ASP, AZA and BTX) & Harmful Algal Blooms (HABs) in the ASEAN Region". The project served to upgrade regional laboratory capabilities in ASP, AZA, and BTX testing, as well as the identification of toxic HAB species. In addition, ASEAN members deepened their knowledge of the occurrences and incidences of biotoxins and HAB species in Southeast Asia. In closing the project, a research publication was also made available as a useful tool for members.

HOSTING DISTINGUISHED VISITORS

During the FY, we received foreign dignitaries and officials, and shared with them our food security strategies, regulatory control, and functions.

Date	Visitor
15 Apr 2019	Li Tianlin, Executive Vice Mayor of Jilin City, People's Republic of China
8 May 2019	H.E. Margriet Vonno, Ambassador of the Kingdom of Netherlands to Singapore
12 Jun 2019	H.E. Marc Abensour, Ambassador of France to Singapore
13 Jun 2019	H.E. Kagawa Takehiro, Ambassador of Japan to Singapore
19 Jun 2019	H.E. Ulrich A Sante, Ambassador of Germany to Singapore
26 Jun 2019	H.E. Karan Andrews, Minister for Industry, Science and Technology, Australia
28 Aug 2019	H.E. Kara Owen, British High Commissioner to Singapore
24 Oct 2019	Pengiran Hasnan, Permanent Secretary of Industry, Brunei
13 Nov 2019	H.E. István Jakab, Deputy Speaker of Parliament, Hungary
27 Nov 2019	H.E. Jo Tyndall, New Zealand High Commissioner to Singapore
28 Nov 2019	David Williamson, Deputy Secretary, Department of Industry, Innovation and Science, Australia
11 Dec 2019	Akinremi Alade Bolaji, Head of Mission, Nigerian High Commission
4 Mar 2020	H.E. Sagi Karni, Ambassador of Israel to Singapore



**ENABLING
EXCELLENCE**

THE CHERRY ON THE CAKE

EXCELLENCE IN ALL THAT WE DO, NOW AND FOR THE FUTURE.

Globally and within Singapore, we are facing more uncertainties in food security, which can be affected by complex issues such as geopolitical tensions, climate change, and disease outbreaks. The public also has increasing demands on our services in this digital age. To meet these challenges, we continued to undertake efforts to prepare for the future, ensure efficient operations, and enhance service delivery.

SFA carries out horizon scanning to detect potential global threat events and situations that may impact food security. This practice helps us prepare for any food supply disruptions by providing lead time for decision-making and response options. We study emerging strategic issues as well as future scenarios to provide insights that enhance SFA's policy-making and strategic preparedness.

Recognising our workforce as key to our progress, we remain focused on empowering our people to better serve the needs of the nation, by improving their competencies and well-being.



PREPARING FOR AND RESPONDING TO EMERGENCY

In times of crises and disruptions, SFA maintains its operational readiness through a calibrated and coordinated response that is guided by the relevant contingency and business continuity plans that we have developed. During the FY, we continued to build resilience and ensure SFA's vigilance on national security and issues, which may arise during peacetime or emergencies. This included capacity development, training, and response planning exercises. These efforts were complemented by our participation in Whole-of-Government collaboration and crisis management exercises.

In light of the COVID-19 crisis, we conducted preparedness exercises to test the robustness of our contingency and business continuity plans. In February 2020, two exercises were held to examine the operational effectiveness of social distancing measures at work. Arrangements for split teams, split locations, and telecommuting were trialled. At the same time, officers were reminded to record their temperatures twice daily and practise good personal hygiene. Standard operating procedures and briefings were also rolled out to guide pandemic-response managers on the safe steps to take when a staff member falls ill while in the office.



When the government announced stricter safe distancing measures after raising the DORSCON level to orange, SFA implemented the new work measures on 30 March 2019. Telecommuting was the default working arrangement where amenable, and staff must follow split team arrangements when they returned to the office for occasional critical matters. To ensure critical functions like laboratory testing and field inspections remain uninterrupted, a group of officers continued working physically at the workplace or on-site. To minimise the risk of COVID-19 transmission, they were required to adhere to safe distancing measures such as split teams, split locations, and wearing of masks.

A small handful (e.g. field workers and service counter staff) with non-critical functions or those who were unable to telecommute were re-assigned to other roles such as safe distancing ambassadors/enforcement officers, or answering customer queries from home.

These arrangements and measures will be reviewed as the situation evolves.

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HARNESSING DIGITALISATION AND DATA ANALYTICS

SFA is constantly enhancing its processes through technology and digitalisation, so that it can effectively enforce its standards, and better serve the needs of the nation. We are on a digitalisation journey to transform and improve our processes by harnessing the power of networks, data, and smart technologies.

To facilitate this transformation, the SFA Operations Centre was set up in January 2020 as an experimentation laboratory for us to trial the use of advanced analytics and data visualisation for food supply traceability, food safety alerts, and food recall. Prototypes of interactive dashboards, including geospatial distribution maps, have been built in to enable impact assessment on food supply disruption scenarios (e.g. flooding, animal disease outbreaks).

Real-time food security and food safety situation awareness will be set up in the operations centre. Data will be aggregated based on past incidences, and machine

learning will be employed for real-time monitoring of food security and safety. Coupled with horizon scanning and business intelligence, predictive analytics will help to identify high-risk food security situations.

In addition, data analysis capabilities are being put in place to study results from food safety test results. Data-driven surveillance will enable us to sharpen our food safety regime. For example, it will allow us to implement efficient audit-based surveillance programme on all food businesses and better target our physical enforcement actions on non-compliance cases.

Big data can also help to improve good customer experience. In FY 2019, we studied the enquires and feedback received, to identify key issues pertaining to food services, retail licence application, and licence renewal. A business process review is underway to identify the causal factors.

As part of the digitalisation of work processes, a mobile application was rolled out to allow staff to apply for leave and file transport claims on-the-go, without having to log into the secure intranet network. Plans are also in the pipeline to equip more officers with smart devices that would allow them to retrieve information, task orders, and carry out operations remotely.



INCULCATING A CULTURE OF INNOVATION

The inaugural SFA Learning Fiesta was launched during the Public Service Week in July 2019 to celebrate life-long learning and innovation. Workshops on urban farming and alternative proteins were conducted. We also organised a Food Science Day themed "Food Science for All", where SFA's scientific and innovative developments were showcased.

In addition, staff are encouraged to find innovative ways to improve processes to save time and create better customer experiences. We took part in the Public Service Division's Million Hours Savings initiative and clocked over 65,000 hours of time savings in 2019. These hours were channelled to other value-added work.

PUTTING CUSTOMERS FIRST

As a customer-oriented organisation, SFA is constantly improving its service delivery to meet ever-rising public expectations. In FY 2019, we stayed true to our commitment to provide greater convenience and seamless customer experience to those we serve.

Introducing 24/7 feedback platform

Since SFA's formation, we have been responsible for attending to feedback and enquiries on retail food outlet operations which were previously handled by NEA. In FY 2019, we incorporated a 24/7 hotline for members of the public to report cases of food poisoning, food hygiene, and illegal hawking. We also introduced a dedicated hotline for the reporting of food poisoning cases to ensure such cases are attended to expeditiously.

Improving licence application processes

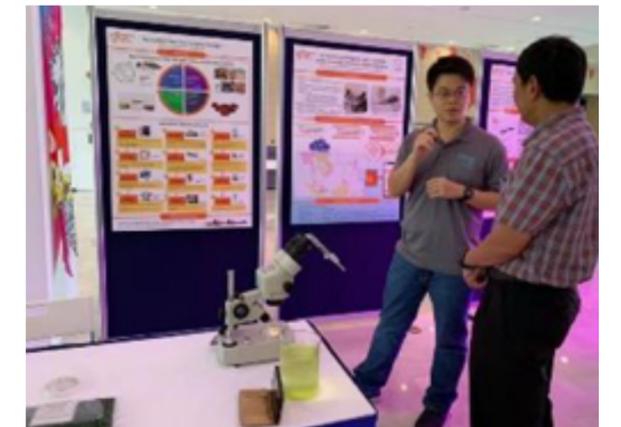
In October 2019, SFA launched two new services for the application of the Food Shop Licence and Food Stall Licence. Working with the Ministry of Trade and Industry and GovTech, the new services were designed to provide businesses with benefits such as a reduction in the number of forms to fill out and a shorter application process.

DEVELOPING OUR PEOPLE

During the FY, SFA continued to invest in building its officers' skills and competencies to keep them future-ready and well equipped to excel at work.

On top of activities to orientate all officers to the mission, vision, and ethos of SFA, functional training programmes were also conducted to develop the relevant officers' expertise in legislation and roles as inspectors. In addition, a training network was formed to identify operational training needs and develop in-house training materials.

To encourage officers to deepen their competencies in specific areas of work, an SFA Education Sponsorship Scheme was introduced to sponsor 50 percent of the compulsory fees for part-time local courses at a recognised educational institution. In FY 2019, four officers were awarded the education sponsorship to pursue further studies in the fields of food science and public health.



CARING FOR OUR PEOPLE, COMMUNITY, AND ENVIRONMENT.

At SFA, we care for our workforce, as well as the community and environment in which we operate. In FY 2019, we organised a series of recreational, health, and family-oriented activities to strengthen rapport amongst our people, promote a healthy lifestyle, and encourage staff to contribute to our community and conserve resources.



WORK-LIFE HARMONY

- Free basic health screening and flu vaccinations for all staff
- 'Eat with Your Family Day' and 'Send Your Kids to School Day' to encourage family bonding



SPORTS

- Vertical Challenge 2019, where SFA staff participated in the annual MEWR Family Charity event.
- 2nd for Men's Open (Individual)
- 2nd in Women's Relay
- 2nd highest pledged individual



STAFF BONDING

- Trip to the Singapore Bicentennial Experience
- SFA Family Day @ SuperPark for staff, their family and friends



CORPORATE SOCIAL RESPONSIBILITY

- Blood Donation Drive
- Read for Books Charity Book Drive
- Vertical Challenge 2019: raised more than \$76,000 with other agencies in the MEWR family
- SFA Charity Movie Night: Together with the Amalgamated Union of Statutory Board Employees (AUSBE), sponsored 70 children from the Community Chest to a movie
- Charity Bazaar: raised \$15,289.20 for the Community Chest



ENVIRONMENTAL SUSTAINABILITY EFFORTS

- Achieved Green Mark certification for three regional offices
- Participated in Annual Earth Hour 2019 by turning off lights at SFA centres with no night operations
- Promoted environmental sustainability by raising staff awareness on Zero Waste Initiatives
- Used energy-efficient ceiling lights and pantry appliances upon replacement
- Stopped the use of disposable utensils in the office environment
- Switched to green-marked office stationery

