



CHAPTER 2
**Ensuring
Safe Food
For All**



CHAPTER 3
**Stepping Out
of the COVID-19
Pandemic**



INNOVATING FOR A FOOD RESILIENT SINGAPORE

CHAPTER 1
**Securing
Our Food
Supply**



CHAPTER 4
**Strengthening Global
Partnerships**



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**Transforming
for the Future**





VISION

Safe food for all

MISSION

To ensure and secure
a supply of safe food

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MESSAGE FROM THE CHAIRMAN

“ SFA remained steadfast in delivering on our mission of ensuring and securing a supply of safe food for Singapore ”

In 2022, our complex operating environment was further challenged by the war in Ukraine on top of the COVID-19 pandemic, geopolitical tensions, disease outbreaks, and climate change. This led to severe disruptions to the global food supply chain, causing food price inflation and insecurity in many parts of the world. Against this backdrop, the Singapore Food Agency (SFA) remained steadfast in delivering on our mission of ensuring and securing a supply of safe food for Singapore through local production and import diversification, while deepening food safety capabilities.

Building capability and capacity for food security

As Singapore imports more than 90 per cent of our food, we continuously look out for early warning signals on possible disruptions to the global food supply chain. When there were such disruptions, our businesses pivoted

quickly to take appropriate measures to minimise the impact to consumers. At the same time, consumers were prepared to make adjustments to their food choices arising from the disruptions.

For example, in response to Malaysia's announcement of the chicken export ban in May 2022, SFA worked swiftly to bring in alternative sources of chilled chicken from Australia and Thailand. During this period, we also approved Indonesia as a new source of chilled, frozen, and processed chicken. Meanwhile, consumers switched to other meat protein or frozen chicken. In December 2022, Singapore accredited Brunei as a new source for hen shell eggs, which further expanded our supply sources. These efforts resulted in the increase in our food supply sources from 172 in 2019 to 183 countries/regions in 2022.



▲ Senior Minister of State for Sustainability and the Environment, Dr Koh Poh Koon, viewing the first shipment of frozen chicken from Indonesia.
Photo credit: Ministry of Sustainability and the Environment.



To work towards our 30 by 30 vision to build the capability and capacity of our agri-food industry to sustainably produce 30 per cent of our nutritional needs by 2030, we are transforming Lim Chu Kang into a high-tech agri-food zone. Alongside that, SFA is supporting local farms through the Agri-Food Cluster Transformation Fund to increase their production output with advanced technologies. Fresh funding of \$165 million was injected

into the Singapore Food Story R&D Programme (SFS 2.0) to support research projects in the aquaculture, agriculture, future foods, and food safety domains, bringing the total funds available to \$309 million. The Singapore Aquaculture Plan was also announced to uplift the local aquaculture industry in 2022, together with AquaPolis, with SFA's Marine Aquaculture Centre as the nucleus for national tropical aquaculture research and innovation.



Deepening food safety capabilities

There is no food security without food safety. The number of cases of illness related to foodborne outbreaks remained low, with 20.5 cases per 100,000 population in FY2022. There were 30 food recalls effected, and a decrease in the number of food establishments suspended for unsafe food practices, from 45 establishments in FY2021 to 43 in FY2022.

In 2022, SFA implemented a new inspection regime with targeted operations on food establishments that are more likely to have food safety lapses, using track record and public feedback. From May to December 2022, 10 per cent of the 1,903 licensees targeted were penalised for breaching regulations – an enforcement rate more than thrice the average 2.8 per cent in 2019 for routine inspections. SFA also took enforcement actions against errant importers, including levy of composition fines, suspension of licenses and prosecution in court. Among cases of illegal imports

“ The Singapore Aquaculture Plan was also announced to uplift the local aquaculture industry in 2022, together with AquaPolis ”



detected in FY2022, 105 warnings were issued, 15 compound fines were imposed, and 14 court cases were prosecuted.



▲ An SFA officer inspecting the premises of a food factory. Such inspections ensure that food is produced in an environment that does not compromise food safety.

SFA works closely with the industry to build third-party private sector capabilities in testing, inspection, and certification for food safety. Our Laboratory Recognition Programme recognises private testing laboratories that the industry can engage to meet their food testing needs, thereby reducing turnaround times. In FY2022, 29.6 per cent of the samples tested by SFA were outsourced to 13 laboratories vis-a-vis zero in 2020.



▲ Staff at work at the National Centre for Food Science (NCFS), the national reference laboratory on food science.

In 2022, as part of our efforts to establish ourselves as a thought leader for food safety, SFA contributed a chapter to the publication, “Food safety aspects of cell-based food”, in collaboration with the Food and Agriculture Organization of the United Nations and the World Health Organization. We established frameworks based on scientific risk assessment for the consumption of novel foods, such as cultured meat. SFA also approved the sale of food products in Singapore that contain Solein (a powder-like protein), providing consumers with more novel food options since the “first-in-the-world regulatory approval” of Eat Just’s cultured chicken meat in 2020.



▲ SFA shared on Singapore’s regulatory approach to alternative proteins in the report.
Photo credit: Food and Agriculture Organization of the United Nations

Involving the industry and community

As part of the 30 by 30 vision, there is also a corresponding need to ensure that there is demand for local produce.

“ SFA works closely with the industry to build third-party private sector capabilities in testing, inspection, and certification for food safety. ”



Local produce was showcased at events such as the 11th annual NTUC FairPrice Made in Singapore Fair in October, the Singapore Food Expo in December, and various Farmers' Markets organised by industry stakeholders such as the Singapore Agro-Food Enterprises Federation Limited and Kranji Countryside Association. Under the new Farm-to-Table Recognition Programme, which

was launched on 27 March 2023, SFA recognised 11 Hotel, Restaurant, Catering (HoReCa) businesses for sourcing from local farms. Besides numerous engagements with local land- and sea-based farms, SFA is also supporting the industry-led Alliance for Action for Local Produce Demand Offtake and Consumer Education, and working with multiple stakeholders to shape the Agri-food Sectoral Plan 2025.

SFA's values

In 2022, SFA affirmed A²RC (Anticipative, Agile, Resilient, and Collaborative) as values that guide how we carry out our work, deal with challenges, push the boundaries, and achieve excellence. This enables us to create capacity, build new capabilities, and drive transformation initiatives to improve service delivery to our stakeholders. As we press on, SFA officers will commit to be mission-driven, embody A²RC values in carrying out our work, and embrace Public Sector Transformation towards our future of work, workforce, and workplace, or 3Ws.

To deliver on our mission successfully, we must collaborate with industry stakeholders and involve the community to shape mindsets and behaviours that lend themselves towards a more resilient Singapore, and to seize new opportunities. Let us continue to work together towards our vision of safe food for all, by supporting local produce and adopting sustainable, safe food choices.

“ Let us continue to work together towards our vision of safe food for all, by supporting local produce and adopting sustainable, safe food choices. ”



Mr Lim Chuan Poh
Chairman



▲ Official launch of the Farm-to-Table Recognition Programme.



BOARD OF DIRECTORS



Mr Lim Chuan Poh
(Chairman)



Mr Lim Kok Thai



Mr Andrew Kwan



Ms Han Yong May



Dr Ho Kim Wai



Mr Krishnan Muthappan



Prof John Lim



Mr Jim Lim



Mr Ong Chao Choon



Mr Pier Luigi Sigismondi



Ms Thien Kwee Eng



Mr Mohd Fahmi Bin Aliman



Mr Lim Chuan Poh (Chairman)

- Non-resident Ambassador to Israel, Ministry of Foreign Affairs
- Chairman, Lee Kong Chian School of Medicine Governing Board
- Board of Trustees, Asia Pacific Breweries Foundation
- Board of Trustees, Nanyang Technological University
- Senior Scientific Advisor to Ministry of Defence
- 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
- Council Member, University of Illinois System President’s Advisory Council
- Member of the Advisory Board, Green Frontier Capital Tech Fund (India)

Mr Lim Kok Thai

- CEO, Singapore Food Agency
- Board Director, AgriFood Technologies Pte. Ltd. (till 5 December 2022)
- Member, Tropical Marine Science Institute Management Board

Mr Andrew Kwan

- President, Restaurant Association of Singapore
- Deputy Chairman, Focus on the Family
- Deputy Honorary Secretary, Singapore Business Federation

- Non-Resident Ambassador to the Kingdom of Sweden, Ministry of Foreign Affairs
- Director, Bethesda Hall (Depot Walk) Limited
- Board Member, Infocomm Media Development Authority
- Co-chair, FEC Lifestyle sub-committee
- Member, Future Economy Council
- Member, MAS Payment Council
- Chairman, Globamatrix Holdings Pte. Ltd.
- Chairman, Commonwealth Retail Concepts Pte. Ltd.
- Director, Spinnaker360 Pte. Ltd.
- Director, Commonwealth Capital Pte. Ltd.
- Director, NPE Print Communications Pte. Ltd.
- Director, Commonwealth Harvests Pte. Ltd.
- Director, Barramundi Group Pte. Ltd.
- Director, Bakematrix Pte. Ltd.
- Director, Swiss-Bake Pte. Ltd.
- Director, Commonwealth Culinary Creations Pte. Ltd.
- Director, Commonwealth Food Services Pte. Ltd.
- Director, Commonwealth China Holdings Pte. Ltd.
- Director, Zac Meat & Poultry 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, SouperFoods Pte. Ltd.
- Director, Lycklig Pte. Ltd.
- Director, &Willin Pte. Ltd.

- Director, Kokubu Commonwealth Trading Pte. Ltd.
- Director, Smorgasbord International Pte. Ltd.
- Shareholder, Marine Produce Australia Ltd.
- Shareholder, MPA Fish Farm Pty Ltd.
- Shareholder, MPA Marketing Pty Ltd.
- Director, Commonwealth Kokubu Logistics Pte Ltd.
- Shareholder, Barramundi Asia (B) Sdn Bhd
- Shareholder, Sealed Network Pte. Ltd.
- Shareholder, Edamummy Pte. Ltd.
- Shareholder, Peas Not War Pte. Ltd.
- Director, Fassler Gourmet Pte. Ltd.
- Director, Commonwealth Concepts Pte Ltd.
- Director, Commonwealth Restaurant Holdings Pte. Ltd.
- Director, Commonwealth Logistics II Pte. Ltd.
- Director, Commonwealth Ventures Pte. Ltd.
- Director, Commonwealth Ventures II Pte. Ltd.
- Director, Float Pte. Ltd.
- Director, SGProtein Pte. Ltd.

Ms Han Yong May

- Executive Editor, Lianhe Zaobao, Chinese Media Group, SPH Media Ltd.

Dr Ho Kim Wai

- Adjunct Associate Professor, Banking & Finance, Nanyang Business School, Nanyang Technological University

Mr Krishnan Muthappan

- Non-Independent Non-Executive Director and Shareholder, Kernow Asset Management (London, UK)
- Board Member, Hindu Endowment Board
- Director & Shareholder, KM Family Investments Pte. Ltd.
- Director & Shareholder, KML Capital Management Pte. Ltd. (Family Office)
- Director & Shareholder, Markham Agro Pte. Ltd.
- Director, Markham Agro (19 HK) Pte. Ltd.

Prof John Lim

- Executive Director, Centre of Regulatory Excellence, Duke-NUS Medical School
- Senior Advisor, Ministry of Health
- Chairman, Consortium for Clinical Research & Innovation Singapore
- Chairman, Board Oversight Committee, Singapore Clinical Research Institute
- Member, Singapore Medical Council
- Board Member, St Andrew’s Mission Hospital
- Council Member, Advertising Standards Authority of Singapore
- Member, US Pharmacopoeia Council of the Convention & Chair, Asia-Pacific Regional Chapter
- Advisor, Mobile-health Network Solutions
- Member, APEC Harmonization Center Advisory Board
- Member, Davos Alzheimer’s Collaborative Leadership Group

Mr Jim Lim

- Consultant, Intellectual Property and Technology, Withers KhatterWong LLP

Mr Ong Chao Choon

- Partner, PricewaterhouseCoopers and related entities
- Board Member, Community Foundation of Singapore
- Board Member, Lee Kuan Yew Fund for Bilingualism

Mr Pier Luigi Sigismondi

- President, Worldwide Packaged Foods, Dole Asia Holdings Pte. Ltd.
- Executive Member, Future Economy Council - Resource and Environmental Sustainability

Ms Thien Kwee Eng

- CEO, Sentosa Development Corporation
- Board Member, Singapore Tourism Board
- Director, Sentosa Leisure Management
- Director, Sentosa Cove Resort Management
- Director, Mount Faber Leisure Group

Mr Mohd Fahmi Bin Aliman

- Mayor, South East District
- Director, Operations and Mobilisation Division, National Trades Union Congress
- Executive Secretary, Supply Chain Employees’ Union



LEADERSHIP TEAM



Mr Lim Kok Thai
Chief Executive Officer



Mr Chan Hian Lim
Deputy CEO
(Corporate, Industry,
and Technology)



Dr Tan Lee Kim
Director-General
(Food Administration)
& Deputy CEO



Dr Abdul Jalil
Assistant CEO
(Operations)



Mr Ken Cheong
Senior Director,
Corporate Development
Division



Ms Lee May Lin
Senior Director,
Communications
& Service Quality
Division



Dr Alvin Yeo
Senior Director,
Joint Policy &
Planning Division



Mr Kevin Khng
Senior Director,
International Relations
Division



Dr Astrid Yeo
Senior Director,
Regulatory Standards
& Veterinary Office



Ms Siti Suriani
Senior Director,
Joint Operations
Division



Dr Ngin Hoon Tong
Senior Director,
Science & Technology
Division



Dr Hazel Khoo
Senior Director,
Research, Innovation
and Enterprise 2025



Wong Sheau Fong
Senior Director,
Land & Sea Space
Planning Division



Mr Melvin Chow
Senior Director,
Food Infrastructure
Development &
Management Division



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



Ms Melin Lim
Senior Director,
Urban Food Solutions
Division



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



Mr Tan Han Kiat
Senior Director,
Licensing Division



Chief Executive Officer

Lim Kok Thai

ORGANISATIONAL CHART

Operations Risk
Management

Internal
Audit Unit

Deputy CEO
(Corporate, Industry and Technology)

Director-General
(Food Administration) & Deputy CEO

Assistant CEO
(Operations)

Corporate Development

Administration
Finance
Procurement
Human Resource
Corporate Legal

Communications & Service Quality

Strategic & Marketing
Communications
Media & Social Media
Service Quality

Joint Policy & Planning

Policy
Planning &
Organisation

International Relations

Regulatory Standards & Veterinary Office/ National Codex Office

Enactment of
Supply of Safe
Food Act

Joint Operations

Operations Management
Operations Policy &
Development
Operations Planning &
Contingency
Special Incident Response
Risk Management &
Surveillance
Investigation & Prosecution

Science & Technology

RIE 2025 Programme

Research Planning
Tech & Digital Masterplanning
System & Project Management
Data Governance &
Transformation
Infra & Security

Land & Sea Space Planning

Food Infrastructure Development & Management

Infrastructure Management
Land & Sea Space
Management

Industry Development & Community Partnership

3030 Planning &
Development
Industry Facilitation
Community Partnership
Market Access
Capability Development

Urban Food Solutions

Aquaculture
Agri-tech & Food
Innovation

National Centre for Food Science

Research & Exposure
Science
Risk Assessment &
Communications
Laboratory Development
Food Science Rapid
Response

Licensing

Licensing Management &
Development
Food Production &
Processing
Food Services
Food Trade
Export Inspection &
Certification

SFA Central RO

SFA East RO

SFA Northwest RO

SFA Southwest RO



April 2022

Consolidating the agri-food landscape with the Singapore Food Statistics publication

The inaugural edition of the Singapore Food Statistics (SgFS) was launched. The annual publication serves as a one-stop, key statistics resource for the agri-food sector in Singapore.



August 2022

Enhancing emergency preparedness with the Mobile Lab

The mobile lab was commissioned and deployed to bring food safety testing capabilities out of the laboratory, to the ground. The on-site testing capabilities enhance SFA's operations and response to food safety emergencies.



October 2022

Boosting innovation to address food safety and security challenges with fresh funding for the Singapore Food Story (SFS) R&D Programme

Fresh funding of \$165 million was announced for the SFS R&D Programme to support innovations in enhancing food safety and security, bringing the total grant to \$309 million.



November 2022

Setting plans for aquaculture R&D in motion with the AquaPolis

The AquaPolis will bring together leading research talents and companies to advance sustainable tropical marine aquaculture growth in Singapore.



Supporting more farms and food types through the Agri-Food Cluster Transformation (ACT) Fund

The scope of the ACT Fund was expanded to include new food items such as fruited vegetables, mushroom, and shrimp. This allows more farms to benefit from the higher co-funding support and invest in farming solutions.



October 2022

Integrating food laboratory testing facilities at the International Business Park

SFA's National Centre for Food Science and the Urban Food Solutions team moved into a single operating site at the International Business Park, streamlining resources for better service delivery and efficiency.



Fostering novel urban food solutions with the Food Grand Challenge

The first Food Grand Challenge was co-presented by SFA and Temasek to support disruptive innovation in agriculture, aquaculture, and alternative proteins. The winning solution will receive a grant of \$1 million to pilot its technology.



February 2023

Co-creating solutions to increase local produce demand through an Alliance for Action (AfA)

The AfA on Local Produce Demand Offtake and Consumer Education, comprising members of our local agri-food industry, was formed to co-create practical solutions to aggregate supply from farms to match the demand of commercial offtakers, and to help consumers understand the relevance and importance of supporting local produce.



March 2023

Recognising food businesses through the Farm-to-Table (FTT) Recognition Programme

The FTT Recognition Programme was launched to recognise food businesses in the hotel, restaurant, and catering sector that procure locally farmed produce.



▲ Photo credit: ONE°15 Marina

YEAR AT A GLANCE



SECURING OUR FOOD SUPPLY

We're continuously expanding our import sources while building our capability and capacity to sustainably produce more food. Through these, we ensure and secure a stable supply of safe food for Singapore.



CHAPTER 1

SECURING OUR FOOD SUPPLY

BASKET 1: DIVERSIFYING IMPORT SOURCES

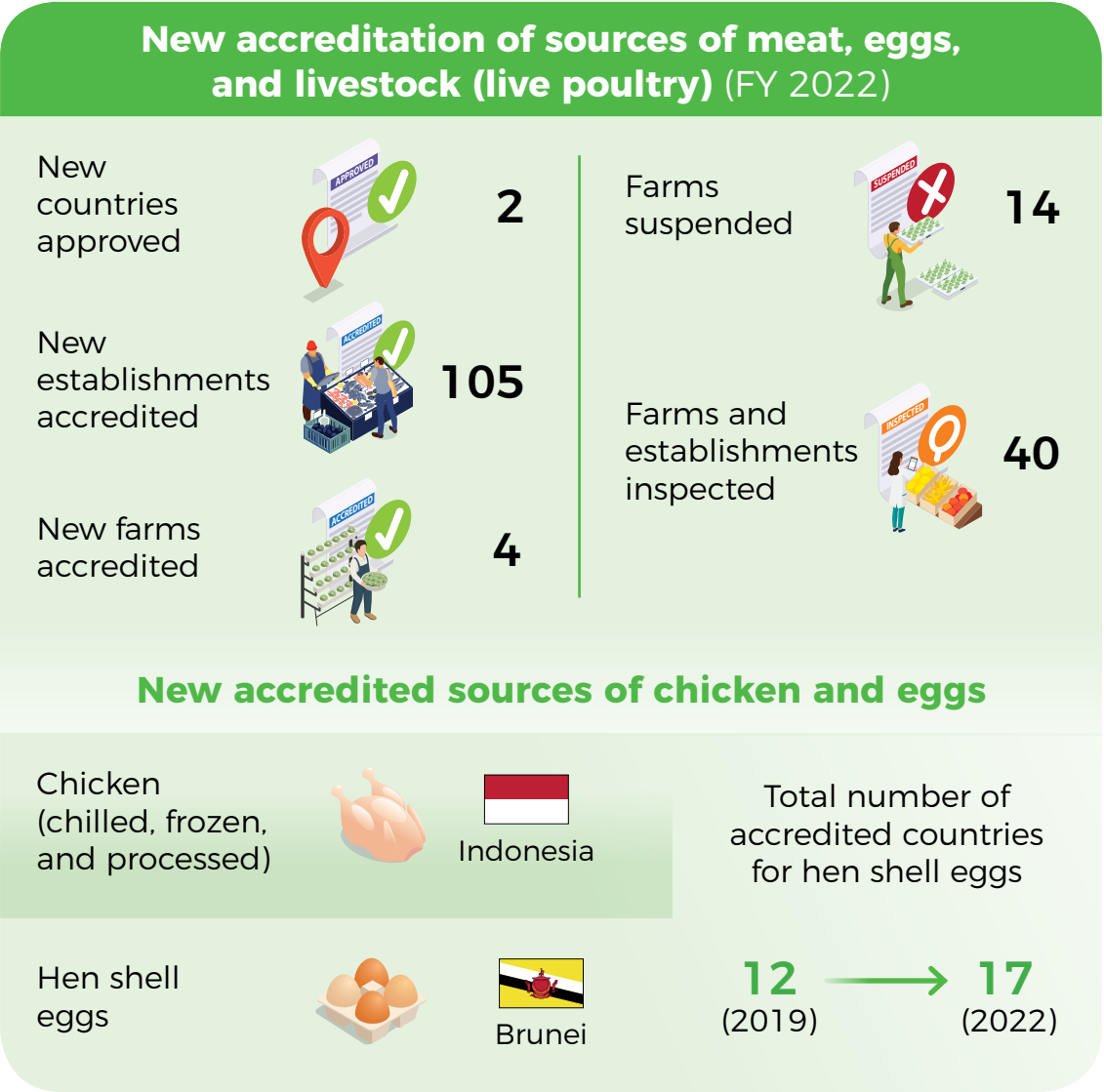
Major sources of supply of most commonly consumed food items (Jan-Dec 2022)

More than 90 per cent of Singapore’s food supply is imported. Our food importers source from over 180 countries and regions, thanks to Singapore’s connectivity and global free trade environment. When any source is disrupted, we have alternatives available that will minimise the impact on our food supply.



Accrediting new import sources

To diversify our food supply, SFA accredits new import sources while maintaining high food safety standards. Meat and meat products, including eggs, must be from accredited sources that meet our food safety and animal health requirements. Food importers must also be licensed or registered, while each consignment of food must be accompanied by valid import permits. This ensures accountability and facilitates food recalls if food safety infringements are detected.





Expanding our network

SFA organises business matching sessions regularly to support local importers in exploring business opportunities with overseas exporters.

Connecting with potential overseas suppliers

Indonesian fresh vegetables and fruits

Meeting with the Indonesian Ministry of Agriculture in Batam involving seven Singaporean companies and 17 Indonesian companies.



Seafood products from Brunei

SFA, together with the Bruneian Ministry of Primary Resources and Tourism, organised a meeting on the sidelines of the 3rd Brunei-Singapore Joint Working Group (JWG) Meeting on 29 November 2022. 17 Singaporean companies from the Seafood Industries Association Singapore (SIAS) and the Singapore Fish Merchants' General Association (SFMGA) met with six Bruneian companies to explore collaborations.




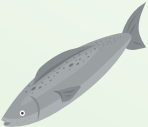


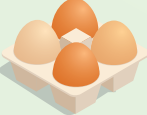




Seafood products from Indonesia

Virtual session organised by the Indonesia-Singapore Agri-Business Working Group (AWG) and Seafood Sub-Working Group (SWG) on 22 February 2023. 18 Singaporean companies from SIAS and SFMGA met with 17 Indonesian companies.



BASKET 2: BOOSTING LOCAL PRODUCTION

Local production plays a key role in mitigating the impact of supply disruptions. The rising frequency of supply chain disruptions caused by climate change and other global developments has made it critical for farms to transform and adopt sustainable, climate-resilient, and productive practices. SFA’s 30 by 30 vision aims to build our agri-food industry’s capability and capacity to sustainably produce 30 per cent of our nutritional needs by 2030. Technology and innovation will be key enablers in our journey to grow more with less.

Licensing & registration of local farms & establishments (FY 2022)			Licensed food farms in Singapore (FY 2022)			Local farm production (Jan-Dec 2022)		
Type of establishment	No. of licences (total)	No. of registrations (total)					Production volume (total)	As a percentage of consumption
Farm	261	-	Sea-based					
Processing / manufacturing	1,623	-	Fish		109	Seafood		7.6%*
Slaughterhouses (poultry, pig, frog, turtle & crocodile)	15	-	Land-based			Vegetables		3.9%
Central kitchen	407	-	Fish		24	Hen shell eggs		28.9%
Cold store	235	-	Leafy vegetables		109			
Retail	50,421	-	Beansprouts		5			
Warehouse	-	1,408	Hen and quail eggs		4			
			Other general agriculture farms (e.g. goat, frog, shrimp, cattle, food crops)		10			
			Total		261			

^ Refers to local farm production figures only.

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

Production volume for seafood and vegetables are rounded to the nearest hundreds.

Optimising land and sea spaces

With limited resources and many competing needs, our 30 by 30 vision requires optimisation of our food production spaces. This includes master planning of land and sea spaces, building infrastructure to support farm operations, and working with the industry to increase production in a sustainable manner.

Uplifting the aquaculture sector



As part of the [Singapore Aquaculture Plan](#)  to transform the sector into a highly productive, climate-resilient, and resource-efficient one, SFA is working towards optimising sea space and providing farmers with greater certainty over their sea space tenure and investments.

From 1 January 2023, all sea-based farms were issued annual Temporary Occupation Licences (TOL), as part of the transition to a lease mechanism to give farmers greater certainty over their sea spaces. This will in turn, help farmers to make more informed business decisions.

About the Singapore Aquaculture Plan

Fish is a nutritious protein source that can be locally produced in a sustainable way. SFA developed the Singapore Aquaculture Plan to transform the local aquaculture sector and boost productivity and sustainability in three ways:

- 1. Increase and optimise spaces for aquaculture
- 2. Invest in research and innovation for sustainable tropical aquaculture
- 3. Help industry adopt technology and better farm practices



▲ Watch how a local fish farmer is applying science and innovation to traditional fish farming.



Planning new sea spaces sustainably

Exploring fish farming in the Southern Waters

SFA engaged nature groups to assess the potential environmental impact of aquaculture activities in the Southern Waters. Feedback gathered would be used to adjust the framework for an Environmental Monitoring and Management Plan (EMMP) for future fish farm tenders, to ensure environmentally sustainable aquaculture.

Ensuring optimal site allocation

SFA completed two key projects to gather data to enable the assessment and planning of optimal site allocation for aquaculture, as well as to develop environmental monitoring guidelines.



▲ The projects included a study to understand the connectivity of pathogens between farming sites, and a survey to assess the current state of sediment quality around farming zones.

Advancing the Lim Chu Kang master plan

SFA continued to progress in our master planning of about 390ha of land in Lim Chu Kang (LCK) to create a high-tech, highly productive, and resource-efficient agri-food hub.



▲ An engagement with nature groups on the Lim Chu Kang master plan.

- ✓ Awarded the tender for the LCK Master Plan consultancy
- ✓ Carried out phase 1 of the Environmental Baseline Study and shared the findings at an engagement session with nature groups and government agencies
- ✓ Consulted nature groups on the scope of work for an upcoming Environmental Impact Assessment to be held after the completion of the Concept Master Plan





Working towards climate and environmental-resilience

8.04 Gg CO₂e: Direct Greenhouse Gas (GHG) emissions from Singapore's agriculture sector, 0.02 per cent of Singapore's total GHG emissions

The findings on 2018 GHG emissions from the agriculture sector derived from a study conducted with the Agency for Science, Technology and Research (A*STAR), were reported for the first time in the 5th Biennial Update Report submitted by Singapore to the United Nations Framework Convention on Climate Change.

Strengthening farm biosecurity

SFA formulated the EMMP framework to help farms better prevent, control, and manage risks associated with pests, diseases, and other biological threats to livestock or plant health. Endorsed by the Urban Redevelopment Authority (URA) and National Parks Board (NParks), the framework covers:

- Farming systems
- Monitoring mechanisms for tracking farm production and discharge
- Mitigation measures to manage potential environmental impacts

Farms with biosecurity and ecological concerns are required to formulate an EMMP endorsed by the relevant agencies.

Strengthening expertise in aquaculture environment management

SFA established a technical expert panel for aquaculture environmental management on 1 January 2023. The panel will advise SFA on matters relating to environmental monitoring and sea-based aquaculture management, including strategies for new aquaculture development and environmental monitoring regulations for sea-based aquaculture.



▲ The Technical Expert Panel for Aquaculture Environmental Management is co-chaired by SFA Deputy Chief Executive Officer Chan Hian Lim and Associate Professor Huang Danwei from the National University of Singapore (NUS). Its members hail from Singapore and beyond, across academia and environmental consultancies.

Building infrastructure to support farms' operations



▲ The new jetty at Lim Chu Kang, constructed to support the operations of coastal fish farmers at the Western Straits of Johor, was opened in October 2022. It was constructed to replace the old makeshift jetty due to safety and security concerns.

Collaborating with the industry

SFA collaborates actively with industry partners and stakeholders to develop the local agri-food sector. We provide local farmers with guidance and technical support to further the development of their farms and engage with industry partners to consolidate our efforts.

Grooming and supporting local farms

Facilitating farm set-up and operations

SFA continues to work closely with local farms to support them in setting up their farms as well as in their operations. Account managers are assigned to all successful tenderers, where they provide them with support and advice to facilitate farm construction and set up. The account managers also actively facilitate discussions between farms and regulatory agencies to speed up regulatory processes and resolve any issues that they may encounter.



116 Agritech companies engaged including assisting with enquiries and facilitating link-ups at trade fairs

35 Local champions supported such as 30x30 Express Grant and Enterprise Singapore's (EnterpriseSG) Enterprise Development Grant (EDG) awardees, and successful tenderers



30x30 Express Grant & Enterprise Development Grant

To support local agri-food enterprises and ramp up local food production, SFA established the 30X30 Express grant that provided \$39.4 million in funding for local farms to defray upfront costs and expand their production capabilities.

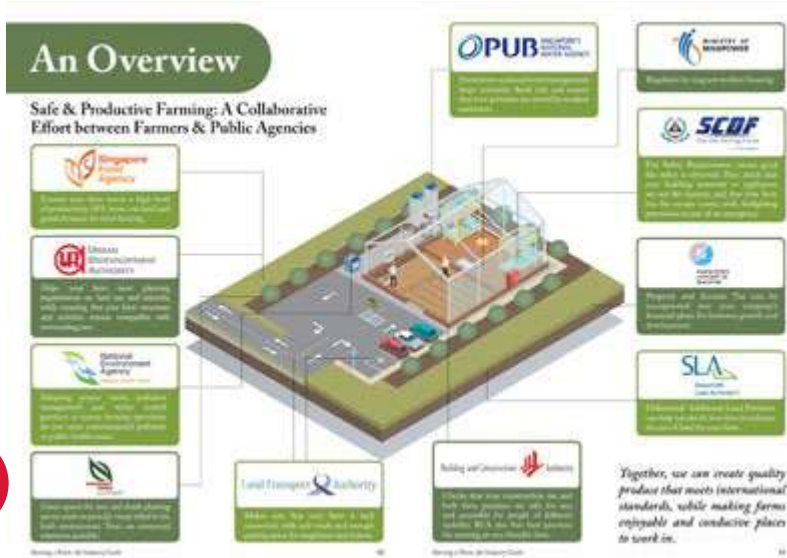
The \$55 million EDG was set up by EnterpriseSG to help local agriculture and aquaculture companies build new capabilities and innovate to grow more with less.

As at 31 December 2022, all projects funded by both grants had completed construction and started production.

Inaugural Industry Guide for Sea-based Farms and Industry Guide 2.0 for Land Farms

To better equip farmers with information on key regulations and procedures in starting their sea-based farms, SFA developed the inaugural [industry guide for sea-based farms](#) in November 2022. The guide provides farms with an overview of the regulatory criteria, administrative protocols, and timelines involved in starting a sea-based farm.

SFA also published a second edition of the [industry guide for land farms](#) in March 2023.



Among the major enhancements was the incorporation of a farm archetype for fruited vegetables and mushrooms, which illustrates how a hydroponic farming system in a greenhouse can meet key regulatory requirements to smoothen its clearance process and reduce development timelines and costs.

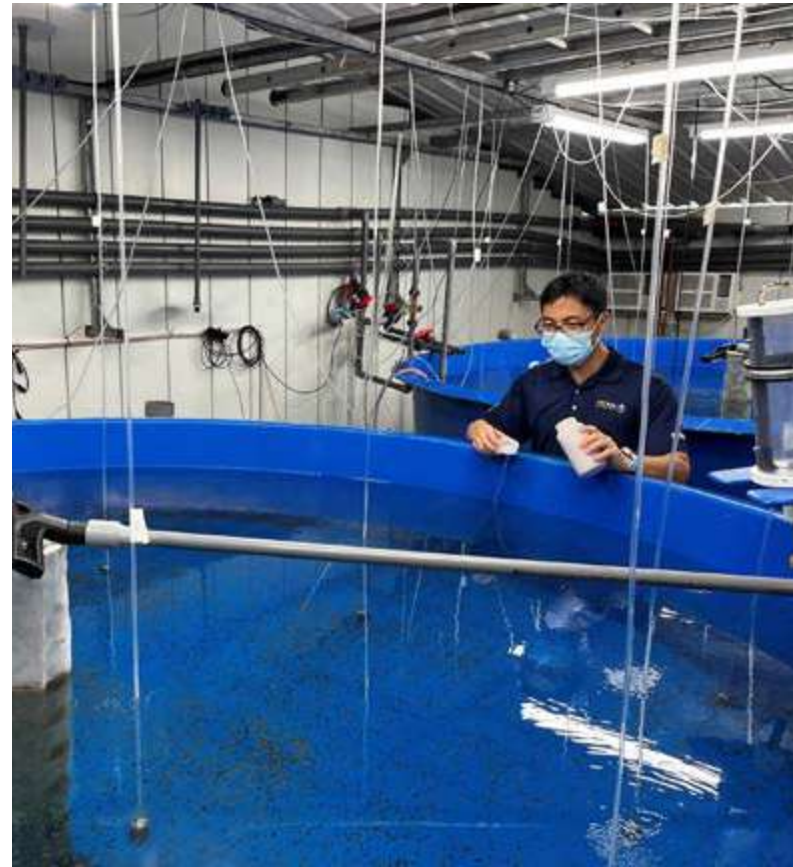


Providing technical advisory support and guidance

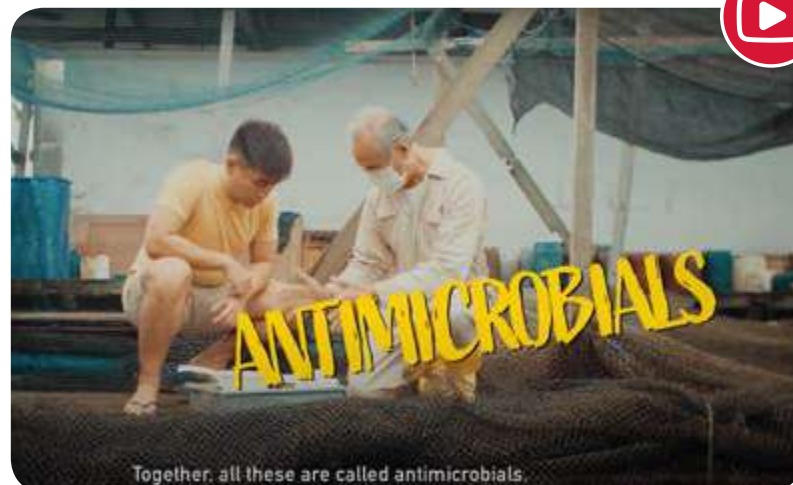
SFA supports farms by providing advice on technical operations and farm management practices. For example, SFA assisted Singapore Aquaculture Technologies (SAT) in the establishment and operationalisation of their hatchery at the floating closed containment farm by providing technical guidance and training. Together with SAT, we established operating protocols for the production of seabass fry and live feed.

“ The team at MAC was pivotal to SAT’s successful hatchery start up. The level of service they offered goes well beyond just providing quality, disease-free Asian seabass eggs. Their years of relevant experience in larva culture in tropical waters makes them an ideal partner to the aquaculture industry. ”

- Dr Michael Voigtman, CTO/COO, SAT

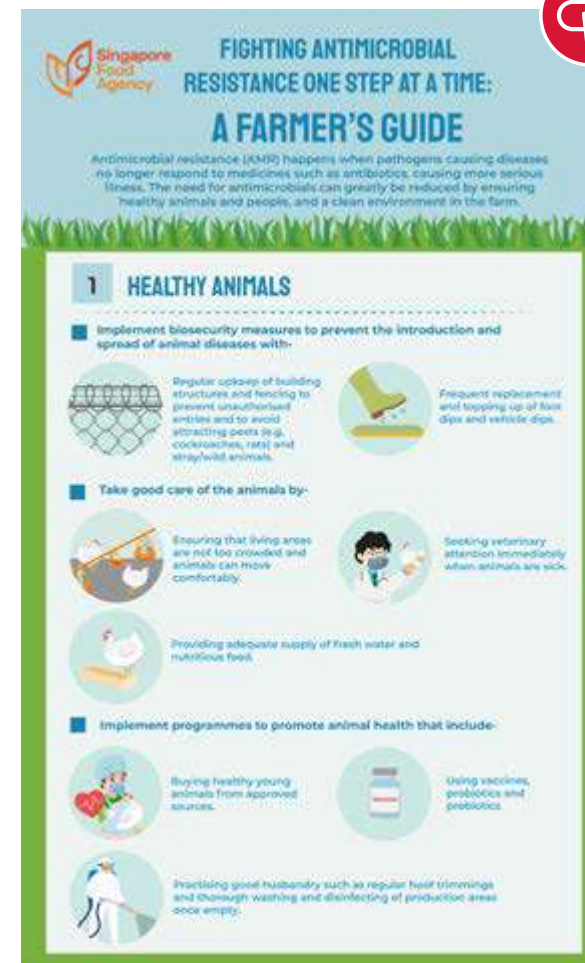


▲ Now in full operation, the hatchery allows SAT to better regulate consistent supply and the quality of seabass fingerlings in ramping up production.



▲ (Left to right) To educate fish farmers on the responsible use of antimicrobials and combat antimicrobial resistance, SFA also published a video and farmer’s guide for fish farmers.

SFA also provided technical guidance and support to vegetable farms on crop, pest, and nutrient management issues. These farms are now better equipped to identify key environmental parameters that impact plant growth and yields, and troubleshoot common issues with pest infestations and crop nutrient deficiencies.



Helping farms gain retail experience

SFA launched the Pilot Retail Incubation Programme in July 2022 to provide selected farms the opportunity to gather practical experience in supermarket retail and strengthen demand for their produce.

Through the six-month pilot programme, four local farms received guidance from FairPrice on how to fine-tune their products, pricing, and promotion mechanics as they sold their produce at nine FairPrice stores.

“ We greatly value the opportunity to work on this pilot programme with FairPrice and SFA. We learned a lot about catering to consumer needs and demands on the supermarket floor, and look forward to introducing a wider range of our produce at FairPrice outlets. ”

- Mr Lee Yuan Hao, Farm Manager of GKE, a vegetable farm which participated in the Retail Incubation Programme 2022





Strengthening relationships with the industry

SFA conducted three sessions of an outreach programme for private veterinarians to involve them in SFA's work. Each session of Vet's Day Out saw the private vets visit local animal farms and volunteer for animal disease surveillance sampling.



▲ (from left, clockwise) Private vets attending a presentation at the National Centre for Food Science (NCFS) on SFA's work with animal farms; A visit to Blue Ocean Aquaculture Technology (BOAT) – a land-based fish farm – to learn about raising fish indoors and BOAT's innovative water filtering technology; A tour around Hay Dairies, Singapore's only goat farm.

At the end of the programme, several attendees volunteered for SFA's annual goat and cattle blood sampling exercise.



“ Vet's Day Out ignited my interest in public health and food safety such that I decided to join SFA. Here, I have a diversity of opportunities to learn and grow professionally with the foundation I have gained from my career in small animal practices, such as conducting farm disease investigations and drafting guidelines to improve farm biodiversity. ”

- Dr. Eugenia Lam (middle), a private vet who joined SFA as a veterinary officer after attending Vet's Day Out



Creating platforms for sharing and growth

SFA organised dialogues between SFA and members of food associations and retailers to establish regular channels of communications and share ideas and feedback.



▲ 10 industry engagements such as dialogues and townhalls were organised for stakeholders including food services associations, retailers, and the hotel, restaurants and catering (HoReCa) sector.



Furthering progress on Singapore’s fourth egg farm

Following the signing of a Memorandum of Understanding (MOU) between SFA and ISE Foods Holdings Pte Ltd (IFH) in 2021, SFA awarded IFH in-principle approval to construct a commercial egg farm in October 2022.

Three sites have since been allocated to IFH for the development of an egg layer farm, day-old chick hatchery, and a parent layer farm.



▲ Photo credit: ISE Foods Holdings Pte Ltd (IFH)



Fostering a supportive ecosystem for agri-food innovation

Innovation and technology are key enablers to sustainably growing more with less. To create a strong and supportive enabling environment and encourage innovation to flourish, SFA provides funding support to innovative research projects and offers platforms for knowledge sharing and R&D partnerships, while updating our regulatory framework and building food safety science and R&D capabilities to ensure food safety.

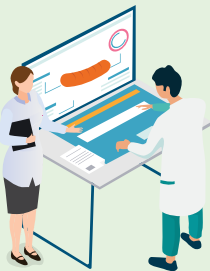
Overview of all funding options available to farmers

**Agri-Food Cluster
Transformation
(ACT) Fund:**
**\$60 million
allocated**



- Launched in April 2021
- To support the transformation of the agri-food sector into one that is highly productive, climate-resilient, and resource-efficient
- Comprises three co-funding components for local farms to build and expand their production capacities and capabilities:
 - Capability Upgrading
 - Innovation and Test-bedding
 - Technology Upscaling

**Singapore Food Story
(SFS) R&D grant:**
**\$309 million
allocated**



- Launched in 2019, as part of Research, Innovation and Enterprise 2020 (RIE2020) plan
- To help local agri-tech and food industry and research institutions push towards the development and use of:
 - Sustainable urban food production
 - Advanced bio-tech-based protein production
 - Food safety science and innovation

Updates on APF & ACT Fund (cumulative as at end of FY 2022)

APF amount committed
\$52.7 million

APF amount disbursed
\$36.5 million

APF projects approved
232

APF projects closed
201

ACT Fund amount committed
\$13 million

ACT Fund amount disbursed
\$3.3 million

ACT Fund projects approved
29

ACT Fund projects closed
12

More Funding, More Food Types

In 2022, SFA expanded the scope of the ACT Fund to offer higher co-funding quantum for a wider range of food types including fruited vegetables, mushrooms, and shrimp. This will allow more farms to benefit from the higher co-funding support and invest in farming solutions.

Key productivity outcomes by APF recipients (cumulative as at the end of FY 2022)

Man-
hours
saved



**451,041
hours**

Increased
production
of leafy
vegetable



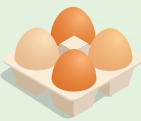
**1,882
tonnes**

Increased
production
of food-fish



**704
tonnes**

Increased
production
of hen shell
egg



**117
million
pieces**



Accelerating aquaculture innovation in Singapore

In November 2022, SFA signed the MOU for the AquaPolis with NUS, Temasek Life Sciences Laboratory, and industry partners. AquaPolis is set to catalyse Singapore's aspiration to be Asia's hub for aquaculture research and innovation under SFA's [Singapore Aquaculture Plan](#). The initiative brings together leading research talents and companies to advance sustainable tropical marine aquaculture growth. SFA's Marine Aquaculture Centre (MAC) will serve as the anchor research campus for AquaPolis, with its facilities enhanced to support R&D needs.

Other aquaculture developments:

July 2022

Signing of agreement for the set-up of the NUS-SFA Aquatech Centre to incubate startups in aquatech.

November 2022

Signing of MOU between SFA and INVE Aquaculture to set up INVE-SFA Hatchery Technology Centre, to develop advanced hatchery technologies and serve as a training hub for local and regional farmers.



Boosting innovation with the Singapore Food Story (SFS) R&D Programme

SFA awarded the second grant call of the SFS R&D programme in October 2022, to projects aimed at addressing challenges faced by the urban agriculture industry.

Among the projects awarded, one aims to develop novel crop protection technologies for indoor vegetable farming to improve yield and efficiency of resource consumption. Another will explore cost-effective and energy-efficient solutions to reduce post-harvest and storage losses.

The SFS R&D Programme also received additional funding of \$165 million, to further the second phase of the programme.



\$7.8 million
awarded to 5 projects



\$309 million
Total SFS grant
with fresh funding



▲ Known as SFS R&D 2.0, the second phase will place greater emphasis on addressing food security challenges, which includes intensifying sustainability and circularity for Singapore’s climate change commitments and enhancing food safety amidst the emergence of novel food.
Photo credit: Urban Farming Partners Singapore (GroGrace), Blue Ocean Aquaculture Technologies (BOAT)



Fuelling disruptive innovation through the Food Grand Challenge

SFA and Temasek co-presented the Food Grand Challenge as part of The Liveability Challenge 2023, which received over 600 submissions from 82 countries. The challenge focuses on supporting disruptive circular urban agriculture and aquaculture solutions, and alternative protein innovations.



\$1 million

Grant that the winning solution will receive to pilot its technology and establish commercialisation

Gathering interest in seed development for Controlled Environment Agriculture (CEA)



▲ SFA and the Economic Development Board (EDB) co-organised an industry roundtable on urban agriculture to assess the level of interest in seed development for CEA. Attendees representing companies, farms, and academia provided useful insights as Singapore explores breeding superior tropical and indoor vegetable varieties for CEA through improved genetics.

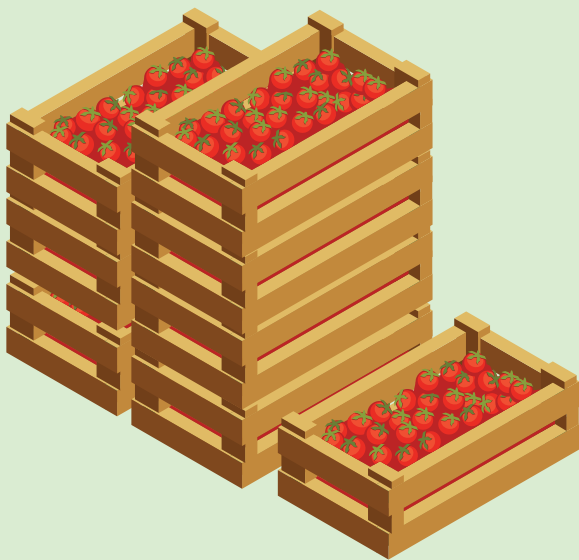


Investing in the future of tropical food production through R&D

SFA endeavours to drive technological development and broaden Singapore’s expertise in tropical urban agriculture and aquaculture through our R&D initiatives. To support local farmers in improving their production capabilities and employing sustainable practices, SFA works closely with industry partners, Institutes of Higher Learning (IHLs), and Research Institutes (RIs) to share our technical input and facilities so that we can identify best practices for the industry.

Cultivating Singapore’s first high-tech tomato farm

On 27 October 2022, SFA and Pure Harvest Smart Farms signed an MOU to develop Singapore’s first high-tech hybrid greenhouse tomato farm and strengthen collaboration in CEA through R&D exploration, knowledge exchange, and capacity building. The project will leverage Pure Harvest’s technical, operational, and sustainable farming expertise to create R&D opportunities for local partners.



Shaping the circular economy through food waste valorisation

As a member of the Industry Steering Committee – Circular Economy (Food) led by the Chairman of the National Environment Agency (NEA), SFA supported efforts in exploring and promoting food waste valorisation into high-value products. Together with NEA, SFA conducted multiple engagements with companies to identify the challenges faced in setting up a Black Soldier Fly (BSF) facility in Singapore. This led to the development and update of a BSF regulatory workflow to help BSF companies navigate the various requirements across agencies when setting up a facility.

BSF and the circular economy

Food waste can be valorised into sustainable and alternative inputs for agriculture and aquaculture. An example is the use of BSF frass as a soil amendment to grow vegetables.



Developing more sustainable fish feeds

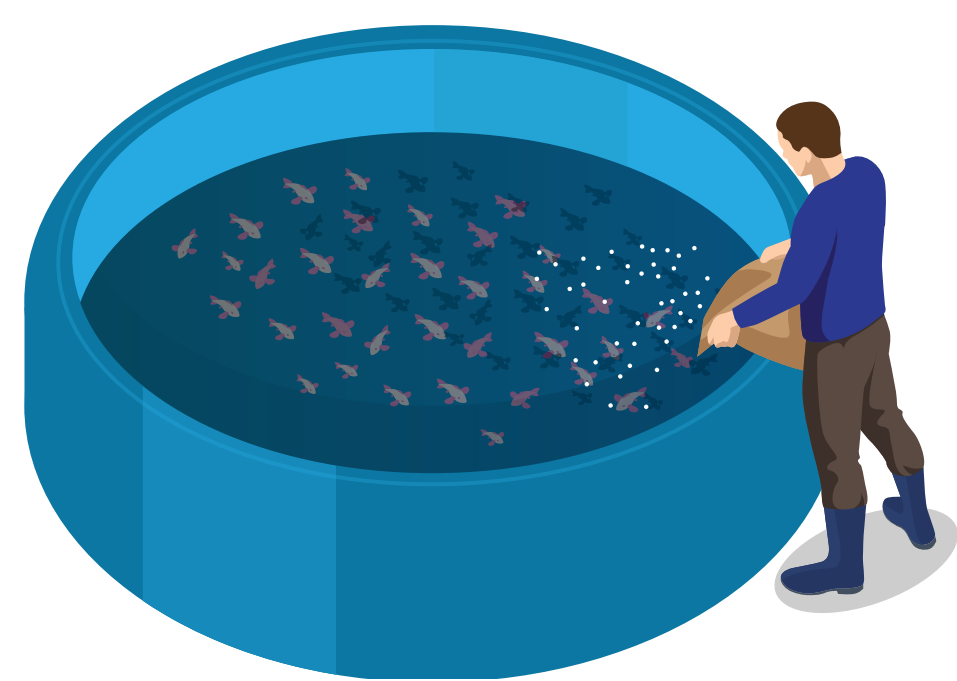
SFA developed an affordable pelleted feed diet using food processing by-products and shared it with our farmers. Some farms have begun making their own pellets, as the feed can be easily produced on-site for aquaculture species with low-protein requirements.



▲ The use of pelleted feed in aquaculture can help minimise the environmental impact of fish farming while still serving as a nutritious food source.

Improving red snapper larval quality

Following hatchery trials, SFA successfully reduced spinal deformity in fingerlings by 10-fold through a combination of enriched live-feeds and culture conditions. The findings were presented at the [World Aquaculture Singapore 2022](#), an international conference and tradeshow involving experts, practitioners, and regulators from the aquaculture industry.





Nurturing the next generation of agri-food talents

As Singapore's agri-food sector continues to grow, there will be more job opportunities for those equipped with skills in agriculture and aquaculture science, engineering, and info-comm technology. To support our 30 by 30 vision, SFA works closely with IHLs and industry partners to attract, emplace, and retain skilled talents for the industry.

Cultivating a skilled agri-food workforce

SFA partnered with SkillsFuture Singapore (SSG), Workforce Singapore (WSG), and local IHLs to expand the suite of training programmes for current and potential workers to enhance their skills and knowledge, and better equip themselves for a career in the agri-food sector. These are some of the new or updated courses:

Diploma in Biotechnology

Offered by Republic Polytechnic (RP), the scope was broadened to include a specialisation in food and agro-technologies for graduates to explore exciting career opportunities in the agri-food industry.



▲ Students checking the root of vegetables grown in the hydroponic system.

Photo credit: Republic Polytechnic



▲ A student learning to pollinate strawberries using a brush.

Photo credit: Republic Polytechnic

Work-Study Diploma in Agriculture & Aquaculture Technology

Developed by the Institute of Technical Education, the new course will equip Nitec and Higher Nitec fresh graduates and existing workers with engineering skills in new agriculture and aquaculture systems, knowledge on food crop cultivation, and fish farm management.

Matching talents to career opportunities

SFA teamed up with WSG, IHLs, and farmers to promote job opportunities in the agri-food sector and build a local talent pipeline to support the agri-food sector.



108
Job seekers
matched with
local farms
through the
MyCareersFuture
job portal



Shoring up consumer support for local produce

Alongside ensuring a stable supply of local produce, SFA recognises the importance of spurring consumer demand to support a thriving and vibrant domestic farming sector. SFA worked with local farms to brand and raise consumer awareness of local produce. We also collaborated with the industry on initiatives to increase market demand.

Setting standards for high-quality local produce

In November 2022, SFA and EnterpriseSG jointly launched the Singapore Standards (SS68): Specifications on Clean and Green Urban Farms for Aquaculture to guide local aquaculture farms to adopt clean, safe, and resource-efficient smart farming techniques. The standard aims to promote responsible farming practices that reduce farm waste, conserve resources, incorporate circularity, and raise operational efficiency. This will in turn assure consumers of sustainable production and boost recognition of high quality local farm produce. The standard was developed together with our partners, retailers, and IHLs under the purview of the Singapore Standards Council.



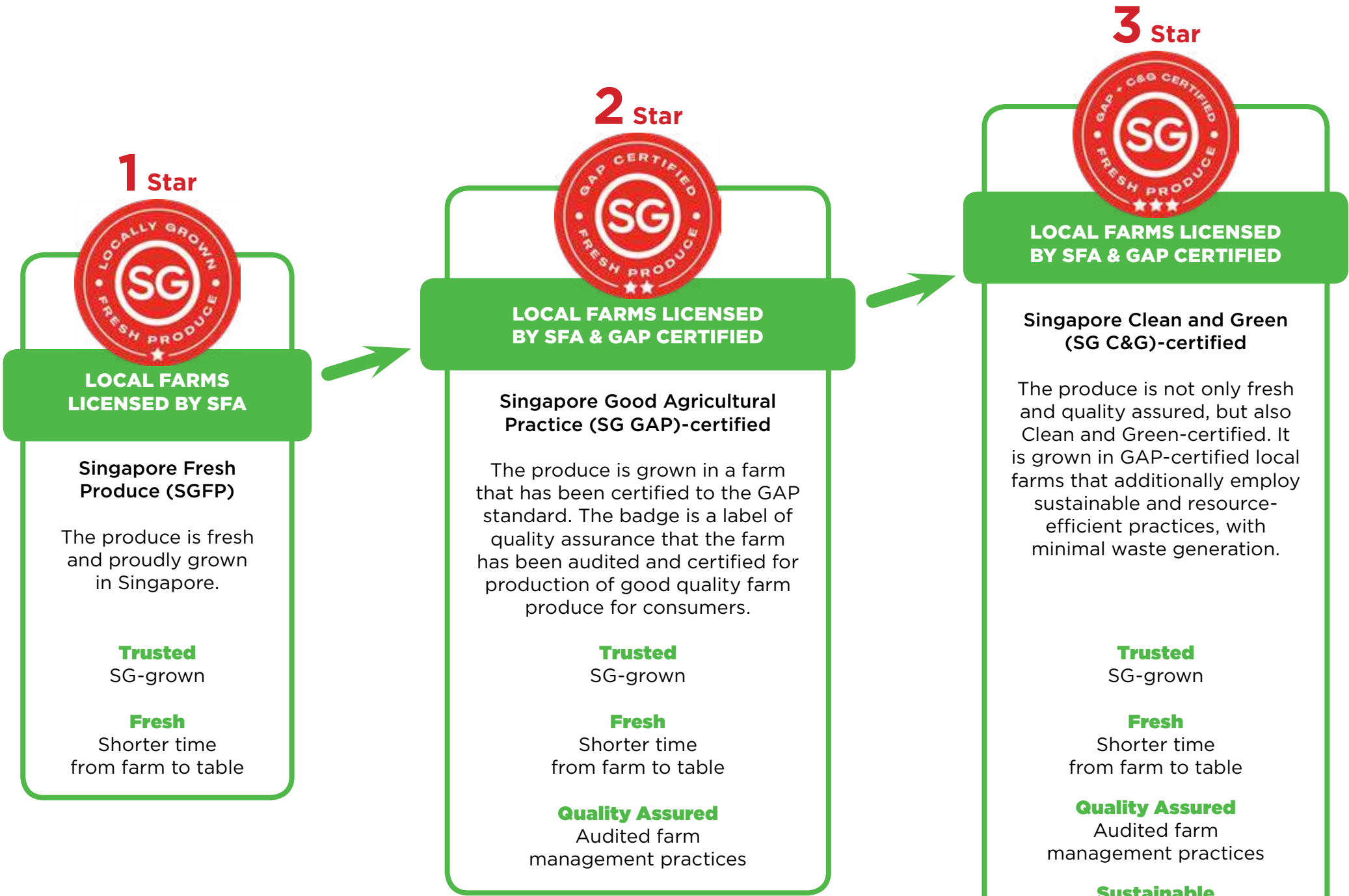
▲ SFA also continued the joint promotion of three SS Good Agricultural Practice (GAP) standards for vegetables, fish, and egg layer farms with EnterpriseSG and the Singapore Manufacturing Federation (Standards Development Organisation) at the Agri-Food Tech Expo Asia 2022.

Distinguishing quality local produce



▲ Photo credit: Sustenir

In March 2023, SFA awarded the first local farm, Sustenir, with the 3-star SG Fresh Produce (SGFP) badge. The badge is a SG Clean & Green certification mark indicating the produce was grown in a farm which has been certified to have adopted both Good Agricultural Practice and sustainable, resource-efficient practices.



▲ Through a step-up approach, the SGFP badges signify the incremental positive attributes of the local produce which bear the respective logos. This helps consumers easily identify and support produce from farms that meet the relevant farming standards through a farm certification process and adopt resource-efficient and sustainable farming practices, enabling them to make more informed and deliberate purchases to support local.



Raising awareness and interest in local produce

From an integrated marketing campaign to collaborations with content creators and supermarkets, SFA continued to promote the SGFP badges and the benefits of local produce to consumers.



▲ Host Charlotte Mei conducting a blind taste test of local produce and demonstrating how to cook two original dishes using local produce. The video was posted on social media.



▲ A three-part series, titled 'Stars Steal the Show', showcasing SFA's local produce mascots Caixinderella, Seabasastian Water, and Eggs Benedette C, were aired as ads on YouTube and on SFA's social media platforms. The videos also featured at the Eco Jalan trail, as part of the National Day Parade (NDP) celebrations at the Marina Barrage organised by Terra SG.



86% Consumer awareness
of local produce in
2022 (based on post-
campaign survey 2022)





▲ An illustrated storybook produced in collaboration with local teen-fiction author, Monica Lim, to raise awareness of local produce and rally Singaporeans to support local farms. The book, which targets young students and their families, was distributed via McDonald's Happy Meals and remains available at the National Library Board's public libraries.



▲ A custom-designed fan pouch in the NDP Pack, featuring the SGFP badges and local produce mascots. The QR code led to a digital copy of The Singapore Farmed Forces storybook.



▲ Signs and aprons carrying the SGFP badge at a wet market. Following a proposal by the [Citizens' Workgroup](#), SFA provided selected local vegetable vendors from 20 participating wet markets with SGFP visual merchandising display sets to help consumers better identify local produce.



▲ Posters and wobblers featuring the SGFP badges at local supermarkets. SFA collaborated with supermarkets such as Sheng Siong, Prime Supermarket, and NTUC FairPrice throughout the year to jointly promote local produce.





▲ (From left to right) Mr Seah Kian Peng, Deputy Chairman of FairPrice Group, Ms Grace Fu, Minister for Sustainability and the Environment, and Mr Baey Yam Keng, Senior Parliamentary Secretary of the Ministry of Sustainability and the Environment (MSE) speaking with Mr Lee Yuan Hao, Farm Manager of GKE Agritech Pte Ltd, at the launch of the Made in Singapore Fair in October 2022. SFA participated in several fairs to promote local produce, including two rounds of the Made in Singapore Fair at NTUC FairPrice in 2022.



▲ A cooking demonstration at the Made in Singapore Fair 2022, for shoppers to sample locally produced vegetables.



▲ Local produce and the SGFP badges were also featured in one of two episodes of MasterChef Singapore Season 3 on MediaCorp's Channel 5. Recipes of the dishes created in these episodes were reproduced and uploaded onto our [#fromSGtoSG microsite](#).



Spurring commercial demand

Recognising industry supporters

On 27 March 2023, SFA launched the Farm-to-Table (FTT) Recognition Programme to recognise food businesses in the HoReCa sector that procure locally farmed produce.



▲ Eleven food businesses were awarded the FTT Recognition Programme Logo at the launch event.



Base Tier: HoReCa businesses that procure at least 15 per cent of local produce in one food category.



Mid Tier: HoReCa businesses that procure at least 15 per cent of local produce in two food categories.



Highest Tier: HoReCa businesses that procure at least 15 per cent of local produce in three or more food categories.

Aggregating supply from farms via an Alliance for Action (AfA)

An AfA for Local Produce Demand Offtake and Consumer Education was formed on 20 February 2023 to bring stakeholders together and co-create practical solutions to aggregate supply from farms to match the demand of commercial offtakers and to help consumers understand the relevance and importance of supporting local produce. Led by the industry and supported by SFA, the initiative was the result of the discussions and outcomes from the ForwardSG industry engagement session led by Senior Minister of State, Dr Koh Poh Koon, in November 2022.

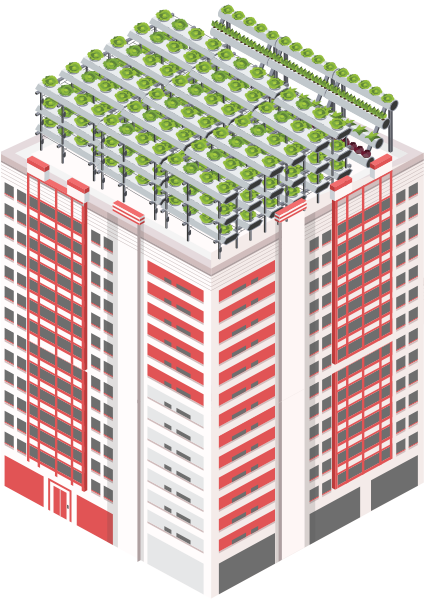
Matching businesses to local farms

To bridge the gap between commercial businesses and local farms, SFA organised a food service aggregators business matching session on 24 February 2023. Companies that supply food services on a commercial scale, including SATS, Indoguna Singapore, Angliss, FoodXervices, and Classic Fine Foods, were among the six food service aggregators introduced to 29 local farms.

Bringing farming closer to the community

Urban farms operating at under-utilised spaces in Singapore can help to increase public awareness on the importance of local food production and bring farming closer to the community to foster a sense of togetherness.

Supporting multi-storey carpark (MSCP) farms



4
MSCP
farms
obtained
certificate
of statutory
completion*

* construction completed and regulatory approvals obtained.



Nature’s International Commodity (NIC) Farm is a MSCP farm which commenced operations in January 2023. A recipient of SFA’s Agri-food Cluster Transformation (ACT) fund, NIC uses an automated and dosing irrigation system. Almost no manual intervention is needed for the farm’s operations, saving 2,052 manhours annually.

Apart from farming, NIC works towards educating and raising awareness of farming within the community. The farm conducts workshops on sustainable urban farming for schools and works with the People’s Association and grassroots leaders to host community events.



At NIC, visitors can join outdoor farm tours and children can participate in a programme to experience life as an urban farmer, learn about organic practices, and even harvest a bag of produce.



BUILDING A RESILIENT FOOD SYSTEM

As a globally connected economy, Singapore is vulnerable to food supply disruptions that can happen from time to time. To be able to respond decisively in the face of such disruptions and minimise impact on Singapore's food supply, SFA reviews our contingency plans and key food supply infrastructure regularly.

Maintaining a steady supply of safe food

SFA takes a multifaceted approach to building a resilient and secure food system for Singapore. We work continually to ensure and maintain operational resilience of key food supply nodes. When supply disruptions hit, we are ready to answer the call and keep our food supply going.

Rising to the occasion during Malaysia's chicken export ban

When Malaysia announced a ban on chicken exports in May 2022, MSE and SFA led a joint-agency effort to minimise the impact of the disruption on Singapore's chicken supply.

Keeping Singapore's chicken supply going

SFA worked closely with the industry and moved swiftly to minimise disruptions to the chicken supply in Singapore by:

1. Ramping up orders from alternative sources

SFA reviewed and expedited processes to facilitate chilled chicken imports from Australia and Thailand, based on companies' poultry import track records, while maintaining food safety standards.

2. Accelerating accreditation of new sources of chilled and frozen chicken

SFA and NParks engaged and assessed new countries for the import of alternative forms of chicken. Indonesia was approved to export frozen, chilled, and heat-processed chicken meat products to Singapore on 30 June 2022.

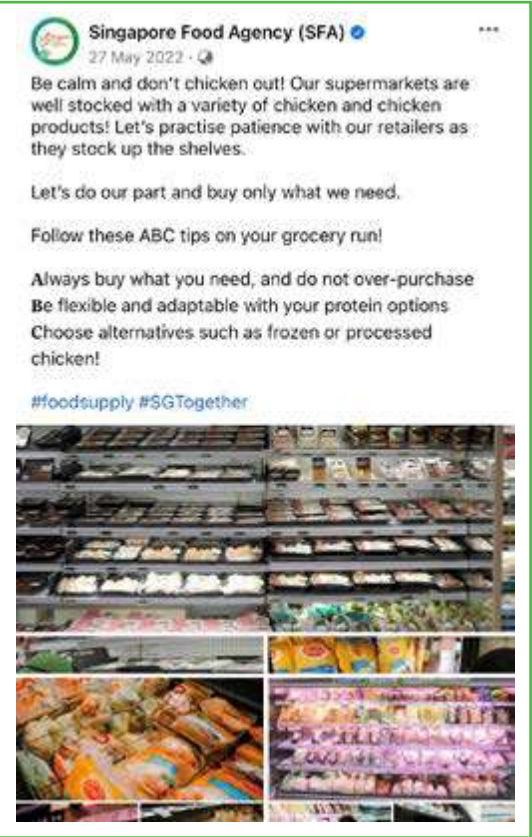
3. Assisting affected industry members

With slaughterhouses' operations halted due to the stoppage of live chicken imports, SFA worked with MSE, the Ministry of Finance (MOF), and the Ministry of Manpower (MOM) to waive the foreign worker levy for 1 month. SFA also connected affected hawkers and market stallholders with the Meat Traders' Association Singapore to assist them in switching to selling frozen chicken.



4. Encouraging consumers to explore alternatives

SFA assured consumers of the availability of chilled chicken, and encouraged them to shift their consumption habits from fresh to frozen chicken, thus enabling the industry to source for chicken supplies from further away.



▲ SFA provided regular updates on the availability of chicken at retail outlets to assure consumers that chicken supply is stable. SFA also encouraged consumers to shift to frozen alternatives through features in mainstream and social media platforms.



“ With only days to react before the chicken export ban kicked in, the SFA team worked tirelessly with our counterparts from various agencies, industry, and overseas competent authorities to ensure a continuous supply of safe poultry (chicken) into Singapore. The team took swift and decisive action to minimise the impact of the chicken export ban.

I am proud to be part of the response team which stayed focused despite mounting pressure and time constraints. The swift actions by the SFA team averted a chicken shortage for Singapore and provided the nation with assurance of sufficient chicken supply, which normalised demand and buying patterns in Singapore. It was heart-warming to see the shelves in the supermarkets stocked with chicken, which was due in large part to our close collaboration with our stakeholders. ”

- Ms Yvonne Chan (centre), Manager, Joint Ops Division who was part of the secretary team



17x
Increase in
chilled chicken
imports
from Thailand and
Australia between
2021 and 2022

31%
Increase in
frozen chicken
imports
between 2021 and
2022

**348
tonnes**
Frozen chicken
imported from
Indonesia as of
31 January 2023



▲ Arrival of the first frozen chicken shipment from Indonesia



▲ Then-Minister of State for Sustainability and the Environment, Mr Desmond Tan, paying a visit to the NTUC FairPrice's Fresh Food Distribution Centre on 26 May 2022 to assure consumers of the sufficient frozen chicken stocks available. Photo credit: Ministry of Sustainability and the Environment



▲ Inspection at a chicken farm in Indonesia

Bolstering agri-input supply



▲ In September 2022, SFA approved two Indonesian farms as sources of day old chicks to Singapore, providing local layer farms with additional supply and enabling continuous production of hen shell eggs even if there is disruption to another source.



Fortifying our food supply nodes

SFA held a series of engagement sessions with Pasir Panjang Wholesale Centre (PPWC) stakeholders to understand the industry's needs and better prepare for contingency scenarios.

11 April 2022

Table-top Exercise (TTX)

SFA successfully conducted a TTX with PPWC's vegetable importers and vendors, and association stakeholders to familiarise them with contingency planning. Issues of concern, such as operations and logistics, were raised during the exercise.

25 June 2022

Ground Deployment Exercise (GDX)

Along with two major vegetable importers, SFA organised a GDX to ensure stakeholders can readily respond during food supply disruptions. Participants familiarised themselves with operational conditions at the alternative site and improvements in the contingency plan were identified.



▲ Participants taking part in a walk-through at an alternative distribution site to familiarise themselves with the area.



▲ Participants discussed various scenarios as a test of their preparedness in the event of any disruption at PPWC.



▲ The table-top exercise saw PPWC stakeholders working together to build a more resilient food distribution and supply network.

To better manage the facility and enhance operational resilience during future major disruptions, SFA also implemented house rules at PPWC over two phases in April and July 2022. These will allow SFA to better manage forklift safety issues, control the use of common areas, and put in place pandemic control measures.

Did you know?

Recognising the importance of sustainable operations at our key trade facilities, SFA developed plans for electricity, water, and waste reduction at PPWC and Jurong Fishery Port in 2022, in accordance with the SG Green Plan.

The plans included the installation of LED lights at common areas, installation of a food waste digester, and assessing and formulating strategies to reduce water consumption.





Making food resilience everyone's business

Everyone has a part to play in strengthening Singapore's food supply resilience. For consumers, this means being flexible and adaptable, choosing a variety of food types from different sources. SFA collaborates actively with schools, government agencies, and industry partners to raise awareness on the importance of Singapore's food security and supply resilience, and how everyone can play their part.

Collaborating with schools and educators

On 16 November 2022, SFA partnered with the Ministry of Education (MOE) to educate 300 teachers on the Singapore Food Story and alternative foods to enhance food supply resilience at the Nutrition and Food Science (NFS) Sharing Day.



▲ Organised in collaboration with the Singapore Agro-Food Enterprises Federation (SAFEF), local farms such as Golden Cap Farm (pictured) showcased and sold their produce at NFS Sharing Day 2022.



▲ Mr Pay Bok Sing, Managing Director of Nippon Koi Farm, sharing about the technology used at his aquaponic farm with MOE NFS teachers.



27
School
engagements
such as talks
and learning
journeys



▲ A video encouraging consumers to be open to alternatives such as frozen food was screened as keynote speaker Dr Tan Li Kiang from NCFS gave a seminar on the benefits of frozen meat.



5
Sharing sessions
conducted by SFA
with educators from
MOE and the National
Institute of Education



Community Outreach and Education

SFA partnered various other government agencies and organisations to organise events and produce collaterals to engage and educate the public.



▲ (Left to right) Together with MOE and the Ministry of Trade and Industry (MTI), SFA published content on Singapore’s food sources and the role consumers can play in times of supply disruptions in MOE’s newsletter (Total Defence edition); A feature in The Straits Times “IN” supplement on Singapore’s food resilience strategies, food alternatives, and sustainable consumption.



▲ SFA, together with the National Security Studies Programme at the S Rajaratnam School of International Studies, Nanyang Technological University, co-produced a video series on the history of food security in Singapore. The video contextualised how Singapore successfully managed and transformed the nation’s food farming industry since independence and continued to do so in present times in response to a growing global population and threats such as climate change.



▲ Junior college and polytechnic students were challenged to print dishes using ingredients that were partly derived from farm wastes from a local farm, Sustenir. Organised by SFA, Armstrong Industrial Corporation Limited, and OCBC Bank, the 3D Printing & Design Innovation Challenge (Digital Gastronomy) by the Singapore University of Technology and Design aimed to promote awareness of 3D printing technologies as an assistive tool in the food sector, and the importance of sustainability as part of SFA’s 30 by 30 vision.
Photo credit: Singapore University of Technology and Design



▲ SFA was presented a plaque for its participation in the Early Childhood Development Agency’s Start Small Dream Big project at the Early Childhood Celebrations 2022. As supporting partner, SFA conducted talks on food security and food safety for participating preschools.



Joining forces with industry partners

Together with industry partners such as SAFEF, Kranji Countryside Association (KCA), and the Singapore Food Manufacturers' Association, SFA conducted 14 engagement events to promote local produce and share SFA's food security messages.



▲ Visitors at SFA's cooking demonstration booth at the Singapore Food Expo in December 2022. The demonstrations featured local produce, frozen chicken, and liquid eggs, as part of efforts to encourage consumers to explore alternative foods and opt for them in times of food disruptions.



▲ A young visitor to The Local Farm Weekend learning about local produce grown in Singapore. A farmers' market, the event was organised by Gardenasia and supported by KCA. It featured local farms and home-grown businesses.



▲ Visitors shopping for local fish at the SG Farmers' Market by SAFEF at Hillion Mall.



▲ Young children learning about various types of local produce through colouring at SFA's outreach booth.



400,000
Number of visitors to the
Singapore Food Expo 2022
over a 4-day period



ENSURING SAFE FOOD FOR ALL

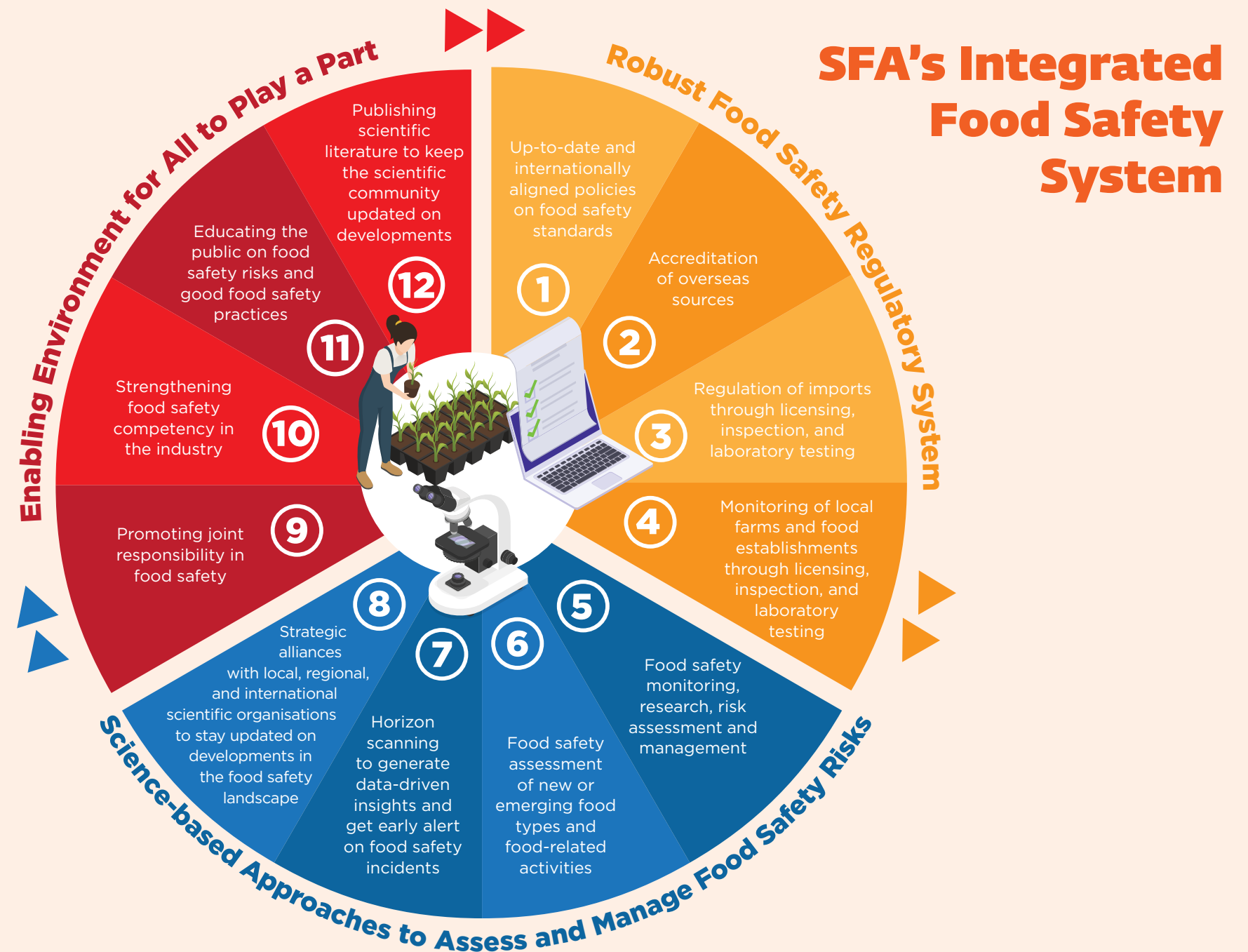
We take the safety of our food seriously and strive to cover all grounds through our integrated food safety system. After all, food security is nothing without food safety.





CHAPTER 2 ENSURING SAFE FOOD FOR ALL

As Singapore's food safety authority, SFA is committed to ensuring and securing a supply of safe food for the nation. SFA has in place an integrated farm-to-fork food safety system with a risk-based approach to food safety that is guided by science and aligned with international standards. SFA also keeps abreast of the latest scientific developments to further strengthen food safety capabilities and ensure that food for sale in Singapore is safe for consumption. As food safety is ultimately a joint responsibility between the government, food industry, and consumers, we continuously strive to foster an enabling environment that supports all stakeholders in playing their part.





Setting national standards

SFA stays current with international developments to keep food safety regulations in Singapore aligned with global shifts and guidelines. We work with industry partners to streamline policies and update our standards to achieve food safety for all.

Enhancing our food regulations

In keeping up to date with global events, SFA regularly reviews and builds upon existing regulations to facilitate trade and industry developments.

Food (Amendment) Regulations 2022 Effective 31 July 2022

SFA approved the use of Pathogen Reduction Treatments (PRTs) on raw meat from imported sources, local slaughterhouses, and cutting plants. Approval and use of PRTs are subject to conditions laid out in the Food Regulations available on SFA’s website.

What are PRTs?

Pathogen Reduction Treatments (PRTs) refer to a range of chemical and biological substances, including organic acids, oxidising agents, and proteins. PRTs are used to reduce the concentration of harmful microbes (e.g. bacteria and parasites) which can cause food poisoning, on raw meat. These can come in the form of a rinse, dip, spray or wash.



Food (Amendment No. 2) Regulations 2022 Effective 3 October 2022

SFA streamlined the Food Regulations by removing 59 standards of identity* to retain only those needed for food safety reasons or to support policies with public health implications. Businesses are expected to comply with existing food safety provisions and labelling requirements to ensure food safety.

* The removed standards of identity, specified under Regulations 39 to 260, contain regulatory requirements on raw materials and composition, as well as characteristics of market foods to ensure that these conform to a certain standard and quality.



Empowering breakthroughs in novel foods

To keep abreast of rapid developments in the novel food scene, SFA reviewed and updated the 'Requirements for the Safety Assessment of Novel Food and Novel Food Ingredients' twice. Updates included policies to allow for the tasting of unassessed novel foods under controlled conditions, regulatory positions to address food safety risks arising from genetic drift and genome instability, and a safety assessment approach for the use of biological substances in cultured meat production. SFA also published two self-assessment safety checklists to assist novel food companies in preparing their novel food applications for submission to SFA.

What is genetic drift and genomic instability?

Genetic drift refers to the random changes that can occur in the genes of organisms over time. Genomic instability refers to conditions of unpredictable changes or abnormalities in an organism's genetic material or DNA.

In food safety terms, genetic drift and genomic instability can lead to unintended changes in the genetic makeup of plants or animals used for food production. These changes can affect the safety of the food.

As part of efforts to establish SFA as a thought leader in the realm of food safety, SFA hosted a workshop organised by the Food and Agriculture Organization (FAO) of the United Nations and the World Health Organization (WHO), to address the safety of cell-based food, such as cultured meat. The workshop culminated in the publication of "Food safety aspects of cell-based food", in which SFA contributed a chapter sharing Singapore's regulatory approach to alternative proteins.



▲ SFA hosted the workshop by FAO and WHO, which was attended by food safety experts across the globe.

Engaging the industry and public

SFA sought the feedback of industry partners and the public on the 'Regulation of Insect and Insect Products' through public consultation from 5 October to 4 December 2022. Feedback gathered will be used to guide our review of the proposed regulations on the import, farming and processing of insects and insect products for consumption.



Securing food safety in e-commerce

SFA partnered Food Industry Asia (FIA), Singapore Manufacturing Federation (SMF), and various other stakeholders to develop the Singapore Standard 687:2022 (Guidelines for food e-commerce). Announced by Ms Grace Fu, Minister for Sustainability and the Environment, at the SMF's Singapore Innovation and Productivity Institute (SIPI) Food Tech 2023 on 13 January 2023, the standard serves as a set of guidelines to the food e-commerce industry, such as local food e-commerce platforms, food delivery platforms and supermarket retailers, on their roles and responsibilities in ensuring food safety when selling food online.

This includes the implementation of best practices, raising industry standards on transparency and traceability, and guided efforts in improving the overall safety of food products sold online. With this guide, food business operators can gain better clarity in managing online food sales and more readily respond to food safety incidents. Consumers, in turn, will be assured in making more informed purchase decisions through the standardisation of product information displayed at points of sale or delivery.



▲ Minister Grace Fu with Dr Allan Lim, Chairman, Food Standards Committee, at the launch of Singapore Standard 687:2022 (Guidelines for Food E-Commerce) during Food Tech 2023.




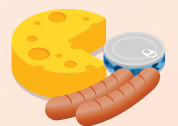




▲ Minister Grace Fu with (from left) Ms Grace Chew, Food Safety and Regulatory Affairs Manager, Lazada; Ms Fiona Tan, Head, Public Affairs, foodpanda; Ms Jiang Yifan, Co-convenor, SS 687; Mr Lennon Tan, President, Singapore Manufacturing Federation; Dr Allan Lim, Chairman, Food Standards Committee; Ms Vanessa Ang, Co-convenor, SS 687, Assistant Director, Singapore Food Agency (SFA); Ms Teresa Lo, Senior Manager, Regulatory Affairs, Food Industry Asia; Ms Lim Jia Ying, Food Safety Manager, Amazon.sg.



Regulating food imports

As 90 per cent of Singapore’s food supply is imported, SFA enforces stringent regulations to ensure that imports comply with our food safety standards, while facilitating and diversifying trade flows. Some measures to mitigate food safety risks in our imports include licensing and registering our importers, inspecting and testing food imports, and clamping down on illegal imports.

Inspection, sampling, laboratory tests, and compliance rates of imports (FY 2022)						
Food type		Volume inspected* (tonnes)	Value inspected* (million)	Consignments inspected	Samples collected	Lab test pass rate (%)
Meat & meat products		50,324	295.3	15,231	8,043	98.2%
Seafood products		4,701	66.4	4,657	2,211	96.6%
Fruits & vegetables		3,015	6.2	10,881	10,022	87.6%
Processed food		8,458	30.9	3,414	2,418	93.8%
Processed eggs		10,348	30.7	1,418	1,314	99.5%
Chicken and quail eggs		1,568,587	29.1	1,371	1,331	99.6%

Illegal imports (detected in FY 2022)	
Warnings	105
Compound fines	15
Cases prosecuted	14

*rounded-up figures

Keeping watch over local farms and food establishments

Local farms and food establishments are integral components of our food supply chain and play a critical role in assuring food security and food safety in Singapore. To ensure good food safety practices are in place and licensing conditions are met, SFA licenses all farms and food establishments, and regulates food storage warehouses. We ensure food handlers uphold good food safety practices, and enforce against illegal hawking activities to mitigate food safety risks. We also regularly review our processes and leverage data analytics to optimise our resources in securing food safety.

Overall inspection, sampling, laboratory tests, and compliance rates (FY 2022)

Local farms & processing / manufacturing establishments						Local retail establishments & central kitchens				Clamping down on illegal hawking (FY 2022)	
Type of establishment	No. of licences	Inspection visits conducted	Inspections detected with non-compliance	Samples collected	Lab test pass rate	Type of establishment	No. of licences	Inspection visits conducted	Inspections detected with non-compliance		
Farm	261	2,452	31	706	96.9%	Central kitchen	407	1,040	71	Warnings	84
Slaughterhouse	15	1,072	6	5,549	95.0%					Composition fines	66
Processing / manufacturing	1,623	4,743	126	1	NA	Retail	50,421	36,472	2,460		
Total	1,899	8,267	163	6,256	95.2%	Total	50,828	37,512	2,531	Cases prosecuted	79



Strengthening food safety through data-driven targeted operations

SFA leveraged data from past inspections, track records and food safety related feedback to identify establishments and conduct targeted operations against those with a higher propensity of food safety violations. This allowed for earlier detection of non-compliances, which could potentially lead to foodborne outbreaks.

Through data analytics, we identified rodent infestation hotspots and conducted targeted operations on 352 food retailers in the vicinity of the hotspots to find nine per cent in violation of food safety standards. We also conducted targeted inspections ahead of high-profile events as a pre-emptive measure to mitigate potential food safety risks. For example, to safeguard the food safety of catering services at the F1 Singapore Grand Prix 2022, SFA conducted inspections at the premises of all caterers, and at the event site to ensure that proper food safety management systems were in place.



▲ SFA officers conducting inspections at the hospitality suite, paddock club, and cafeteria of the F1 Singapore Grand Prix 2022 premises.

Streamlining processes to facilitate outbreak investigations

Under Singapore's One Health (OH) framework, SFA collaborates with other public health agencies to learn, prevent, prepare, and respond to cross-sectoral public health threats using an integrated and collaborative approach. To facilitate disease outbreak investigations, SFA streamlined the sampling process to collect food samples and only food-related swabs for testing. This allowed us to optimise resources and focus on the testing of critical food samples to aid investigations.

What is the OH Framework in Singapore?

The OH Framework is a platform for multisectoral collaborative efforts to tackle threats involving humans, animals, and our shared environment. It comprises five government agencies – the Ministry of Health (MOH), National Environment Agency (NEA), National Parks Board (NParks), PUB, Singapore's National Water Agency, and SFA - who lead programmes in their respective domain areas of animals, environment, human, and food.

Enforcing mask or spit guard requirements

To minimise food contamination during the preparation and handling process by food handlers, SFA formalised the requirement for all individuals involved in the preparation, cooking, packing or dishing of food and drinks to wear masks or other forms of physical barriers such as spit guards. We proactively engaged the industry to communicate the requirement and took enforcement actions where necessary.

This requirement was first introduced in April 2020, but was superseded by the COVID-19 mask mandate passed shortly after. Prior to the relaxation of safe management measures in August 2022, SFA had proactively engaged the industry to remind them that our requirement will remain in place when the COVID-19 regulations are lifted.



▲ SFA officers conducting inspections at food establishments to engage food handlers on the mask / spit guard requirements and ensure compliance.

Staying on top of food safety incidents

While Singapore has stringent measures to keep food safe, food safety threats can arise occasionally due to the long and often complex food supply chain. SFA has in place processes which enable us to respond and intervene in a timely manner through investigation and laboratory testing, and swiftly effect food recalls where needed.

Major gastroenteritis incidents* (FY 2022)		Food recalls by type (FY 2022)	
Cause	No. of incidents	Reason for recall	Number of recalls
Foodborne	22	Allergen	7
Non-foodborne	22	Chemical	15
Inconclusive	6	Microbial	6
		Physical	2
Total	50	Total	30

* Gastroenteritis incident investigated by agencies such as MOH and SFA.

Footnote:

- 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

Jif Peanut Butter Products Recall

SFA swiftly facilitated the recall of “Jif” peanut butter products following notification by the U.S. Food and Drug Administration (FDA) of potential *Salmonella Senftenberg* contamination which may cause foodborne illnesses leading to symptoms such as fever, abdominal cramps and diarrhoea. Within a day, SFA worked with importers to complete the recall of implicated batches and issued a public advisory for consumers to avoid consuming the affected products.





Monitoring and testing for food safety

About SFA's National Centre for Food Science (NCFS)

SFA's National Centre for Food Science (NCFS) is the national reference laboratory for food science. NCFS plays a crucial role in upholding food safety by providing scientific expertise and performing in-depth applied research, risk assessment studies, data analytics, and laboratory diagnosis. It also provides testing services to support the investigation of foodborne disease outbreaks, and constantly strives to further develop advanced laboratory capabilities to counter threats from emerging hazards.



Streamlining NCFS’s operations into one centralised site

To streamline operations and improve accessibility for inspectors who routinely submit samples for screening, SFA relocated NCFS from multiple locations to one consolidated centralised site at the TechQuest Building at the International Business Park (IBP) in October 2022. Fully equipped with state-of-the-art equipment, cutting-edge technologies, and a multidisciplinary team of experts, our integrated NCFS@IBP facility will better enable us to provide technical support and training on food safety testing, guidelines on best practices, and scientific leadership in furthering our mission to ensure food safety in Singapore. SFA has since held international training workshops such as the International Atomic Energy Agency’s Workshop on Alpha-Emitting Radionuclides and hosted foreign delegates at our new NCFS@IBP facility.



Partnering the industry to detect food safety infringements

NCFS partners private testing laboratories under the Laboratory Recognition Programme (LRP) to expand and strengthen their testing capabilities, contributing to the food testing ecosystem in Singapore. 29.6 per cent of the microbiological and chemical tests, supporting our food safety programme, were outsourced to them. NCFS also worked with industry partners to outsource 60 per cent of the food sampling field work under the market monitoring programme which helps to identify high-risk retail products for regulatory inspection and sampling. Collaboration with industry in testing and sampling allows the industry to play a part in the detection of food safety infringements, and enables NCFS to focus on advanced technical capability development, risk assessment and regulatory standard review to address new and emerging food safety challenges.

Volume of tests conducted (FY 2022)		
	No. of samples tested	No. of laboratory tests performed
Import Control	32,498	169,928
Surveillance	26,416	150,615
Total	58,914	320,543



27

New tests that NCFS attained accreditation for in FY 2022

What is Laboratory Recognition Programme (LRP)?

SFA developed the LRP to establish a network of private testing laboratories which are recognised by SFA for their capability to support the industry’s food safety testing needs.





Enhancing emergency preparedness and response

To support a faster turnaround of sample collection and testing, especially for critical operations and emergencies, SFA introduced the Mobile Lab. The ability to conduct rapid, on-site testing and diagnostics broadens SFA’s operations and food surveillance capabilities as it allows SFA officers to quickly assess the situation and take enforcement action where necessary. It also enables SFA to monitor hazard levels when a food safety incident is evolving and provide real-time feedback on the effectiveness of mitigation measures put in place.



▲ The interior of the Mobile Lab is equipped with multidisciplinary capabilities for rapid detection of radionuclides, common foodborne pathogens as well as pesticides and residues using a (A) gamma spectrometer, (B) multiplex PCR machine, (C) automated solid phase extraction (SPE) clean-up system and (D) gas chromatography–tandem mass spectrometry (GC-MS/MS System) respectively. Having these equipment readily available in the Mobile Lab supports SFA’s special operations such as the investigation of illegal imports of undeclared high-risk fruits and vegetables. It also allows SFA to take immediate enforcement action, which could serve as an effective deterrent against such errant behaviour.

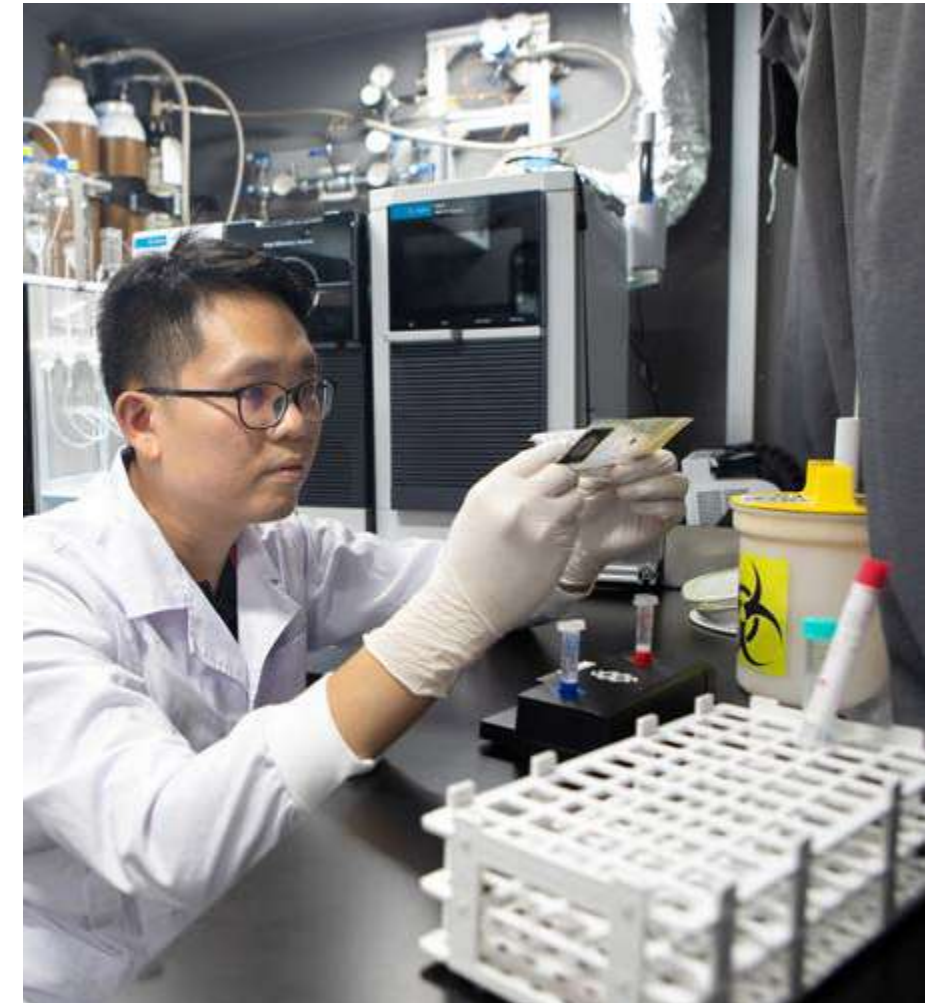
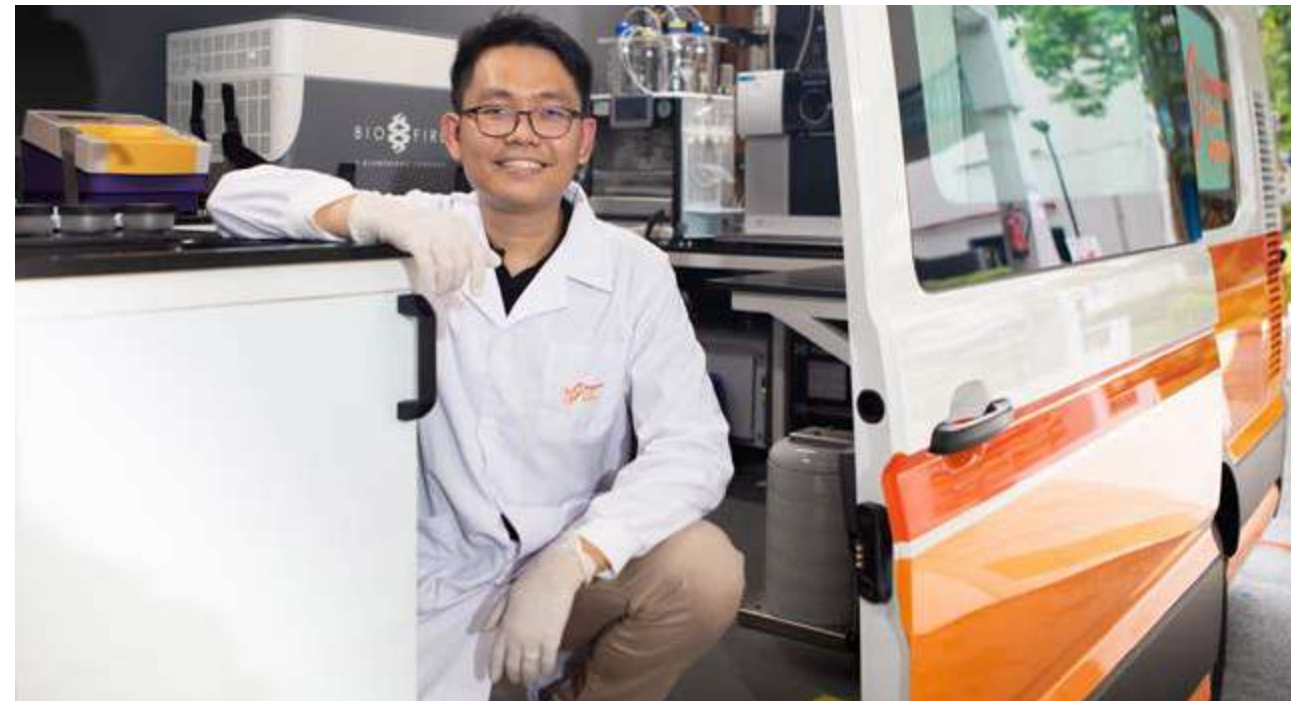


▲ On-site inspection at National Day Parade (NDP): SFA performed rapid microbiological testing of food swabs from food catering establishments in under two hours using the Mobile Lab.



“ SFA deployed the Mobile Lab for its first operation at NDP 2022, where on-site testing of pathogens on food contact surfaces at food catering establishments was conducted. It was later deployed to perform rapid microbiological testing at food establishments catering for Chingay Parade 2023. The Mobile Lab allowed NCFS scientists to detect pathogens in food contact swabs within just 2 hours, which enabled SFA to direct establishments to perform immediate rectifications such as sanitising the affected areas in order to mitigate potential food safety risks. This ensured that the food prepared for participants and performers were safe for consumption. ”

- Dr. Stan Chan Siew Herng, Scientist, NCFS



Did You Know?

The Mobile Lab was recently awarded an ISO17025 accreditation by the Singapore Accreditation Council (SAC) for its testing facilities, allowing SFA to leverage any findings produced in the vehicle for direct enforcement action.



Enhancing capabilities to tackle food safety threats

Harnessing data analytics to anticipate emerging food safety hazards

In collaboration with One Health (OH) agencies, SFA's NCFS co-developed the Biosurveillance Framework to build capacity across the OH agencies for the detection of emerging and re-emerging zoonotic and foodborne diseases. Capabilities in horizon scanning and risk assessment to enhance detection of diseases were developed using a combination of predictive data analytics and modelling tools and techniques. The inaugural [‘Situational and Risk Assessment Report for One Health Hazards’](#) was published in November 2022 and will continue to serve as a channel to disseminate information relating to food safety lapses, OH outbreaks, and guidelines on good food safety practices to the industry and public. Such interagency collaborations enhance SFA's capabilities to quickly identify high-risk food products and food establishments, and optimise resources for inspections and food sample testing.



Developing new detection capabilities

NCFS developed a novel approach to accelerate the detection of *Salmonella enteritidis* in eggs. *Salmonella enteritidis* can cause symptoms such as fever and abdominal cramps when consumed.



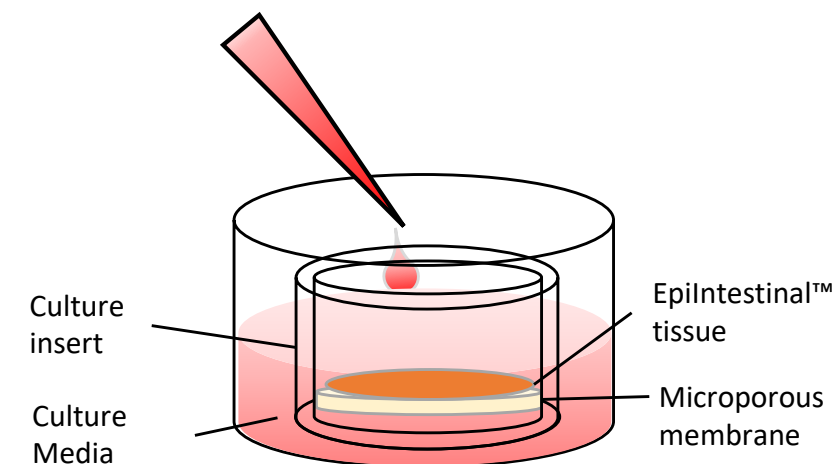
Reduced screening time

for *Salmonella enteritidis*
detection from

7 to 4 days

to better facilitate import
control operations.

NCFS also established new capabilities for detecting and quantifying micro-/nanoplastics, and nanomaterials in food and food contact materials, and collaborated with the Future Ready Food Safety Hub (FRESH) in a study on the toxicological testing application of a 3D in-vitro tissue model. These capabilities will help to enhance our safety risk assessment of micro-/nanoplastics and nanomaterials to inform food safety risks and regulations.



What is Future Ready Food Safety Hub (FRESH)?

FRESH is the national research and support platform under the Singapore Food Story R&D Programme. It is jointly established by Singapore's Agency for Science Technology & Research (A*STAR), SFA and Nanyang Technological University (NTU), to build Singapore's capabilities in food safety science.



Enhancing our surveillance capabilities

Keeping consumers safe through pre-emptive screening

In response to food safety alerts from the European Union (EU), Taiwan and Hong Kong on the detection of *ethylene oxide* in Häagen-Dazs vanilla-flavoured ice cream and instant noodle products, SFA conducted pre-emptive screening of various ice cream and instant noodle products from different brands from local supermarkets. Following the testing of most major brands, we found *ethylene oxide* in 12 different instant noodle products, namely in the seasoning powder and chilli flakes, and performed a swift recall of the implicated products locally to mitigate food safety risks for consumers.

What is Ethylene Oxide?

Ethylene oxide is a fumigant pesticide for treating selected agricultural products such as dried herbs, spices, and sesame seeds. As it is a volatile gas, residues in food can dissipate with time, although low levels of *ethylene oxide* may remain in treated food. There is no immediate risk to consumption of food contaminated with low levels of *ethylene oxide*, however, long term exposure may lead to health issues.

Strengthening understanding of local seafood produce

SFA conducted a study to investigate the radioactivity levels of several natural and artificial radionuclides in local seafood produce. Our findings confirmed that locally farmed seafood contain only trace amounts of radionuclides and consumption of our locally farmed seafood pose no radiological risk to consumers.

Gaining insights to inform strategy

SFA and MOH have been working on a long-term epidemiological survey since December 2021, to better understand the risks associated with Salmonellosis and Campylobacteriosis, to develop better strategies to reduce occurrences of foodborne illnesses. In February 2023, we found that a relatively larger proportion of foodborne illness cases were of certain age groups, and identified food categories commonly consumed by cases. When the study uncovered a relationship between a cluster of sporadic cases and the consumption of poultry products imported from a similar region overseas, SFA shared the findings with overseas authorities for their awareness of potential risks. Insights from the epidemiological survey inform our food safety measures and allow us to quickly respond to potential food safety threats before they become a large-scale foodborne illness outbreak.



Ethylene oxide screening was performed on

52
Häagen-Dazs
ice-cream
samples

29
samples of
other ice
cream brands

67
instant noodle
products covering
31 major brands (15
per cent of all brands)



Promoting joint responsibility in food safety

Food safety is a joint responsibility. While SFA maintains a regulatory system and an enabling environment to ensure food safety, the food industry and consumers each have a critical role to play. The food industry must ensure good food safety standards and take responsibility for the safety of the food they provide to consumers. Consumers, too, should equip themselves with good knowledge of food safety risks and adopt good food safety practices. SFA collaborates closely with food industry partners to share best practices and help consumers stay informed on food safety risks.

Risk at a Glance



Safety of Home Fermentation -
Is my homemade Kombucha
safe to drink?

Safe Practices for Non-Stick
Pans

'Forever Chemicals' in Food

(Chicken) Rice To Meat You!

Reducing Risks from Ready-to-
eat Meats

E.coli O157: Menacing
Microbes in Minced Meat

New Foods from Fermentation

Insects for Food and Feed

Are Tomatoes Truly Trouble?

Are Raw Eggs Safe to Eat?

Hepatitis E virus and Food
safety: Understanding the
Foodborne threat

Chocolates: Cause for Concern?

The Toxic Bug in Canned Food

Processing contaminants in
food: Glycidol esters and MCPD
esters

The Troublemaker in Bulk
Cooking: Clostridium
perfringens and Food Poisoning

Salad Safety: Risks of Raw
Vegetables

Inorganic Arsenic in Hijiki Seaweed

Introduction

Hijiki (scientific name *Sargassum fusiforme*) is a brownish green seaweed found along the coasts of Japan, Korea and China. Hijiki is dried after harvesting and looks like brownish-black twigs. It is commonly served boiled or braised with rice, added to soup or salad in Japanese and Korean cuisine.

Hijiki naturally absorbs and accumulates high levels of inorganic arsenic, a heavy metal, from seawater. Long-term intake of high levels of inorganic arsenic, may lead to health problems such as cancer and skin lesions.



Dried hijiki seaweed

▲ Risk at a Glance article by SFA on heavy metal concentrations in different species of seaweed, and food safety tips on how to safely consume hijiki seaweed which is known to have health benefits.



Other educational materials

5 KEY TIPS ON FOOD SAFETY

1

Select your food carefully

2

Wash and keep clean

3

Separate raw and cooked food

4

Cook your food well

5

Keep food at safe temperature

Remove damaged or bruised parts of vegetables before handling them.

Wash non-RTE vegetables thoroughly. Soak them in fresh tap water for 15 minutes to remove germs and chemicals effectively.

How do we ensure that our vegetables are safe to eat?

Read the label of pre-packed vegetables. Salad packs that are not RTE need to be washed before consumption.

Wash your hands before and after handling vegetables.

Remove damaged or bruised parts of vegetables before handling them.

Wash non-RTE vegetables thoroughly. Soak them in fresh tap water for 15 minutes to remove germs and chemicals effectively.

@SGFoodAgency

What can I do to ensure the safety of cut fruits?

Buy cut fruits from SFA-licensed food establishments.

Discard cut fruits that have been left at room temperature for more than two hours.

Refrigerate cut fruits at 4°C and below if not consuming immediately.

Always keep cut fruits covered and away from raw food.

@SGFoodAgency

Tips on handling your frozen meat

THAWING

- As far as possible, thaw meat without opening the package to prevent contamination, dehydration and absorption of foreign flavours.
- Thaw only the amount required.
- Place the frozen meat in the refrigerator or use the microwave oven to thaw meat safely.
- Remember to separate raw meat from cooked or ready-to-eat food to prevent cross-contamination.
- Do not refreeze meat that has completely thawed as the quality of the meat may deteriorate. Improper handling and refreezing of meat may lead to growth of bacteria to levels that can cause food poisoning.

@SGFoodAgency

Crossword

Across

1 If food is not handled properly, you can get F... poisoning.

2 Always check for any T... on food packaging before buying.

3 We must wash our hands with water and S... .

4 Keep food at safe temperatures in a C... bag.

Down

5 Always check the expiry D... before buying food.

6 Do not buy eggs that are C... .

7 Wash your F... and vegetables before eating.

8 Always separate R... and cooked food.

recommend you NOT to wash raw poultry before cooking.

justkeepthinkingsg and sgfoodagency
Paid partnership with sgfoodagency

So how did Singapore know that these foods were unsafe?

sgfoodagency and justkeepthinkingsg

and even toxic chemicals that can lead to food poisoning.

justkeepthinkingsg and sgfoodagency
Paid partnership with sgfoodagency

the bivalves we buy in Singapore are usually safe

justkeepthinkingsg and sgfoodagency
Paid partnership with sgfoodagency

▲ From left clockwise: New colouring and activity sheets for use in schools and at relevant events; Social media posts covering tips on handling food to ensure food safety; Collaborations with content producer Just Keep Thinking, on videos addressing common food safety myths. From articles to videos, SFA actively publishes materials to educate consumers on food safety risks.

Click on the icons to access the links



STEPPING OUT OF THE COVID-19 PANDEMIC

Keeping our workers and infrastructure safe are key to ensuring a steady supply of food for Singapore. As the worst of the COVID-19 pandemic passed, we facilitated the resumption of F&B services while drawing lessons to prepare for future crises.





CHAPTER 3

STEPPING OUT OF THE COVID-19 PANDEMIC

As Singapore navigated its way out of the COVID-19 pandemic, SFA played a critical role in maintaining a consistent supply of safe food. We worked closely with the industry to facilitate the resumption of F&B services and review Safe Management Measures (SMMs) at food supply nodes to safeguard workers and consumers. Drawing on the lessons learned from the pandemic, SFA introduced measures and regulatory strategies to enhance food safety and industry resilience in future eventualities.

Facilitating the resumption of self-service buffets

In April 2022, SFA enabled the resumption of self-service buffets while implementing stricter food safety measures for the food establishments offering them. These measures were taken to cultivate better practices and instil a stronger sense of responsibility for food safety both within the industry, as well as among consumers.



▲ As part of a new licensing requirement, hand sanitisers or disposable gloves are required to be provided in the food display area. Customers are encouraged to use them before picking up food. Restaurants are also strongly encouraged to adopt good practices such as changing the serving cutlery periodically and using chafing dishes with covers to protect food from exposure to contaminants.



Calibrating measures at food distribution nodes

Responding to evolving national postures for COVID-19, SFA adjusted the SMMs at Pasir Panjang Wholesale Centre (PPWC) and the fishery ports to facilitate the transition between stages for stakeholders.



▲ Resumption of normal operations at the Jurong Fishery Port (JFP) and PPWC. During the COVID-19 pandemic, access to these sites and the movement of workers across the marketplace in JFP were tightly managed to keep workers and visitors safe.



▲ Workers loading and unloading goods at JFP (left) and at PPWC (right). At the height of the COVID-19 pandemic, contactless delivery was mandated, with foreign delivery crew and local workers required to keep a safe distance from each other.



▲ Workers and boatmen unloading goods at the wharf at JFP. When SMMs were in place, only dedicated workers in personal protective equipment could operate forklifts and cranes at the wharf to reduce the risk of virus transmission.

Despite the relaxation of some SMMs, we continued to collaborate with government agencies such as the Ministry of Health, National Environment Agency, and Singapore Land Authority to monitor the situation and implement contingency plans. This included the studying of [alternative distribution sites for PPWC](#) and JFP.





STRENGTHENING GLOBAL PARTNERSHIPS

We participate actively on the regional and global stage to build relationships, exchange knowledge, and advance towards common goals together. With Singapore's food supply deeply integrated with the global network, such progress translates to stronger food safety and security at home too.





CHAPTER 4

STRENGTHENING GLOBAL PARTNERSHIPS

Through active engagement and collaboration, Singapore fosters strong relationships with international partners in food, agriculture, aquaculture, fisheries, and research. These global partnerships enable SFA to better safeguard Singapore's interests, advance our capabilities, and contribute to local, regional, and international food security efforts.

Key regional and international exchanges

April 2022

- East Asia Summit (EAS) Workshop on Illegal, Unreported, and Unregulated (IUU) Fishing



▲ SFA CEO Lim Kok Thai delivered a pre-recorded speech at the workshop, which Singapore co-chaired.

May 2022

- World Organisation for Animal Health (WOAH) 89th General Session

June 2022

- 3rd Management Meeting of the Food Standards Australia New Zealand (FSANZ)-Enterprise Singapore (EnterpriseSG)-SFA Memorandum of Understanding (MOU)

August 2022

- Special Senior Officials Meeting for the 43rd ASEAN Ministers for Agriculture and Forestry (AMAF) and related meetings
- Asia-Pacific Economic Cooperation (APEC) Ministerial Meeting on Food Security

September 2022

- G20 Agriculture Ministers' Meeting



▲ Senior Minister of State for Sustainability and the Environment Dr Koh Poh Koon delivered statements on Singapore's views on building resilient and sustainable agriculture and food systems.



October 2022

- 50th Session of the Committee on World Food Security
- 44th AMAF and related meetings



▲ Addressing challenges and building resilience in ASEAN's food and agriculture sector.



▲ Senior Parliamentary Secretary Baey Yam Keng called for greater collaboration between ASEAN Member States in strengthening the region's food systems.
Photo credit: Ministry of Sustainability and the Environment

November 2022

- 27th United Nations (UN) Climate Change Conference (COP-27)

Singapore held its first country pavilion at COP-27. Themed “Building a Future of Green Possibilities”, the Singapore Pavilion showcased the [Singapore Green Plan](#) in the form of curated activities and interactive panels.



▲ Acting Director of the National Centre for Food Science Low Teng Yong participating in a panel discussion by the Good Food Institute at the Singapore Pavilion on Food Day, where he shared on Singapore's regulatory framework for novel foods.

November to December 2022

- 45th Codex Alimentarius Commission





Fortifying global partnerships

SFA actively nurtures strong partnerships with international counterparts, reaffirming our commitment to collectively advance food safety and security.

Furthering aquaculture development

On 6 December 2022, SFA and the Omani Ministry of Agriculture, Fisheries Wealth and Water Resources signed an MOU to strengthen cooperation between the two nations in the aquaculture sector. The signing was held as part of the inaugural Singapore-Oman Strategic Dialogue, where both parties agreed to further aquaculture development through an exchange of technical knowledge and expertise.



▲ Photo credit: Ministry of Foreign Affairs Singapore

Strengthening food trade links

SFA, together with several agencies such as the Ministry of Trade and Industry (MTI), established the Food Pact between Singapore and Australia as part of the Singapore-Australia Supply Chain Working Group. The Food Pact will support local exporters, importers, and consumers by facilitating the trade of high-quality and reliable food products. It will also support Singapore as a transshipment hub for food products and build cooperation between both countries on food security issues.





Cultivating an international collective

SFA fosters knowledge sharing at the global level by hosting and participating in international events. These platforms enable members of academia, industry, and regulatory agencies to gather and exchange insights on a wide range of topics from food security to food safety.

Breaking new ground as a global community

Singapore hosted the second Singapore International Agri-Food Week (SIAW) 2022, providing industry members, policymakers, and academics as well as investors a platform to share ideas and strategies towards a more dynamic and robust agri-food network. SFA organised and participated in three of four main events during the week-long convention.

About SIAW

The agri-food sector’s annual flagship event, SIAW gathers members of the global agri-food industry to address challenges faced by the food industry, debate on contemporary food security and sustainability issues, and assess emerging opportunities. It also provides a platform for participants to showcase innovative urban food solutions and technologies, and forge new partnerships.



▲ Minister for Sustainability and the Environment Grace Fu viewing Singapore’s Whole-of-Government Pavilion at the Agri-Food Tech Expo Asia (AFTEA) 2022, held as part of SIAW. The pavilion was organised by SFA with support from the Singapore Tourism Board (STB), and featured the Singapore Food Story. Held from 26 to 28 October 2022, the AFTEA gathered over 6,000 industry professionals and showcased the latest innovations and technologies in the agri-food industry.



Promoting safe innovation of novel foods

SFA hosted the third Novel Food Regulations Roundtable on 25 October 2022 to provide regulators and industry stakeholders a platform to discuss regulatory approaches in facilitating novel food innovations while ensuring food safety. The hybrid event was attended by over 200 international members of academia, industry, and regulatory agencies.



▲ SFA Director-General, Dr Tan Lee Kim, moderating a panel discussion on setting novel food standards.

“ The novel food ecosystem is best served by strong partnerships between regulators, industry, academia, and all other stakeholders. I am optimistic the conversations at this year’s Roundtable on Novel Food Regulations will deepen our collective understanding of the challenges associated with novel foods, as well as enable us to discover opportunities in this exciting field. ”

- SFA Director-General,
Dr Tan Lee Kim (right)



Empowering innovation in urban food systems

SFA, with the Nanyang Technological University, organised and hosted the inaugural Global Agri-Food Scientific Symposium, where scientists and industry leaders came together to share research innovations and promote synergies within the food ecosystem. Held on 27 October 2022, the event anchored on a dual theme of “Resilient and Sustainable Urban Food Systems” and “Transformation of Future Food System”. It comprised keynote speeches by leading scientists and technical presentations from the awardees of the first Singapore Food Story R&D Grant Call.



▲ The inaugural Global Agri-Food Scientific Symposium hosted 353 participants from 24 countries including Australia, the Netherlands, and the United States.



Hosting Singapore's first world aquaculture event

SFA hosted the World Aquaculture Singapore (WAS) 2022 from 29 November to 2 December 2022. Held for the first time in Singapore, the major international conference and tradeshow was organised by the World Aquaculture Society to bring together experts, practitioners, and regulators to synergise mutual skills and develop solutions for the aquaculture industry.

“ (active collaboration) will pave the way for new partnerships that will benefit the growth of our nascent aquaculture industry. ”

- Ms Grace Fu, Minister for Sustainability and the Environment, in her keynote speech at WAS 2022



Event Statistics

3,592
attendees
from
82
countries

264
exhibition booths

58
scientific sessions

409
scientific presentations

198
scientific posters



Advancing global regulatory science

SFA co-hosted the Global Summit of Regulatory Science (GSRS) from 19 to 21 October 2022, where renowned panellists from across five continents converged in Singapore to discuss bridging the gap between scientific research and their practical implementation in regulatory frameworks.



▲ Centred on the theme, “Advances in Nanotechnology for Food and Medical Products: Innovations, Safety, and Standards”, GSRS 2022 saw scientists gather to assess the utility of emerging technologies and discuss the best way to translate these technologies into real-world applications.



Showcasing Singapore's resilience as a global city



▲ SFA's booth at the Whole of Government Pavilion at World Cities Summit 2022. In line with the theme of "Liveable and Sustainable Cities: Emerging Stronger", the pavilion showcased how Singapore could emerge from major disruptions such as the COVID-19 pandemic and climate change through innovations and urban solutions, by strengthening the nation's food security through local food production.

Establishing our nation as a hub for safe food

Leveraging Singapore's position as a port hub, SFA strives to facilitate the opening of new food trade flows while ensuring the safe passage of incoming and outgoing food cargo.

Building a network of inspection bodies for transhipment

To help build new capabilities and position Singapore as a food transhipment hub for the region, SFA announced the Food Cargo Inspection Body Recognition Programme on 22 November 2022. The programme aims to establish a network of accredited third-party inspection bodies to perform inspection of bulk food cargo to support the export, transhipment, and re-export needs of the food industry.



▲ Inspections are conducted based on guidelines developed by SFA in conjunction with industry partners.

Strengthening food export capabilities

SFA partnered with the Singapore Accreditation Council to launch a third-party Auditing Organisation Recognition Programme. The initiative aims to build a network of third party auditing organisations approved by SFA to audit food establishments and support the industry in meeting export needs. To date, two auditing organisations from the private sector have been recognised under this programme.

Gearing up for global market access

To enhance the accessibility of information on overseas food import requirements for local exporters, SFA developed the Export Library Market Reports – a compilation of selected destination markets and their respective import regulations. The reports enable exporters to self-help and reduce the market research required.



26
Market reports
published



Strengthening ties with ASEAN counterparts

SFA works closely with partners from neighbouring nations to strengthen regional collaboration in trade and investment, and coordinate efforts in safeguarding food safety and security in Southeast Asia.

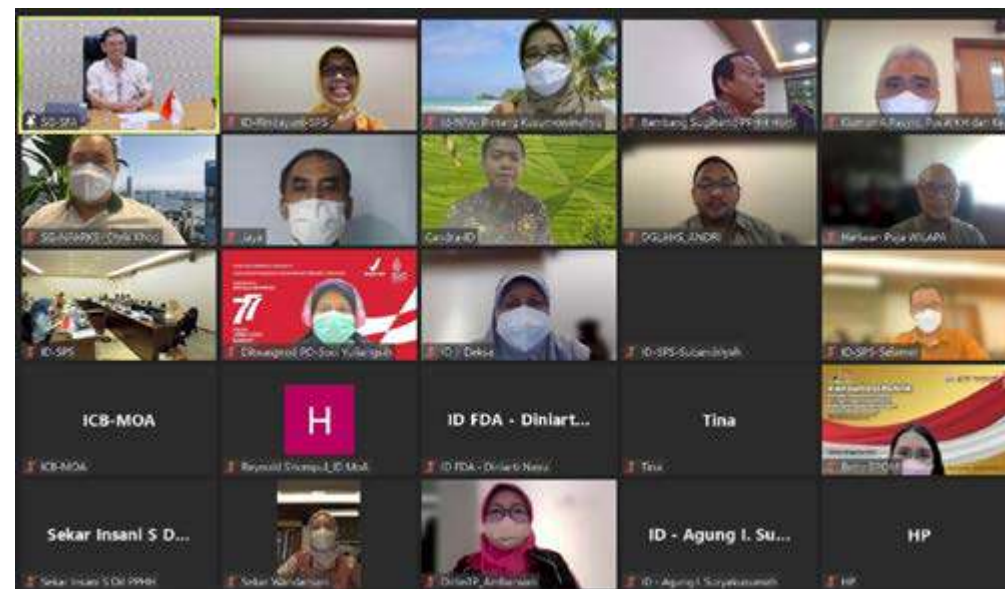
Engaging in bilateral partnerships through economic platforms

June 2022

- 10th Six Working Group Senior Officials' Meeting with Indonesian counterparts including officials from the Ministry of Agriculture
- Roundtable Discussions between MTI and Vietnam's Ministry of Industry and Trade

August 2022

- 18th Indonesia-Singapore Agri-Business Working Group Meeting with the National Parks Board (NParks) and Indonesian officials from the Ministry of Agriculture, Ministry of Marine Affairs and Fisheries, and National Food and Drug Authority



- 2nd Technical Discussion of the Sanitary and Phytosanitary Standards – Import and Export Requirements Sub-Working Group with NParks and Indonesian officials from the Ministry of Agriculture, Ministry of Marine Affairs and Fisheries, and National Food and Drug Authority
- 12th Singapore-Indonesia Six Bilateral Economic Working Groups Ministerial Meeting

The meeting noted the expansion of agri-business collaboration between both countries, including the facilitation of Indonesia's first export of frozen chicken and heat-treated chicken products to Singapore.



November 2022

- Business meeting between NTUC FairPrice and Indonesian company Batamindo



- ▲ Visitors from Singapore at Batamindo Green Farm's post-harvest facility. Facilitated by SFA, the Economic Development Board, and the Ministry of Foreign Affairs Singapore, the meeting was held to facilitate business discussions between NTUC FairPrice and Batamindo Green Farm to increase the volume of fresh vegetables imported from Indonesia.

- 3rd Brunei-Singapore Joint Working Group Meeting with Bruneian officials from the Ministry of Primary Resources and Tourism

December 2022

- 16th Singapore-Vietnam Connectivity Ministry Meeting with Vietnamese counterparts including officials from the Ministry of Industry and Trade

February 2023

- 1st Brunei-Singapore Food Supply Working Group Meeting with Bruneian officials from the Ministry of Primary Resources and Tourism



- ▲ The meeting was co-chaired by then Permanent Secretary of the MTI Lee Chuan Teck, SFA CEO Lim Kok Thai, and Permanent Secretary of the Bruneian Ministry of Primary Resources and Tourism Hajah Tutiatty Abdul Wahab. Photo credit: Ministry of Trade and Industry

March 2023

- 19th Indonesia-Singapore Agri-Business Working Group Meeting with Indonesian officials from the Ministry of Agriculture, Ministry of Marine Affairs and Fisheries, and National Food and Drug Authority



- ▲ The meeting saw officials reaffirm the partnership between Indonesia and Singapore in the facilitation of agri-food trade.



March 2023

- 3rd Technical Discussion of the Sanitary and Phytosanitary Standards (SPS) – Import and Export Requirements Sub-Working Group with NParks and Indonesian officials from the Ministry of Agriculture, Ministry of Marine Affairs and Fisheries, and National Food and Drug Authority



▲ The sub-working group discussed electronic SPS certificates to be exchanged, shared information to facilitate food import and export, and agreed on notification channels to use for detections of non-compliance in imported foods.

Combating Antimicrobial Resistance (AMR)

Singapore works continuously alongside partner agencies, regional partners, and the industry in the global fight against AMR. In partnership with the Food and Agriculture Organization of the United Nations, SFA organised and participated in the AMR technical advisory group from 20 to 22 September 2022.

What is AMR?

Antimicrobial resistance (AMR) refers to the ability of microorganisms (such as bacteria, viruses, fungi and parasites) to prevent an antimicrobial (antibiotics, antivirals, antifungals and anthelmintics) from being effective against it. Microorganisms that develop AMR are sometimes referred to as “superbugs”.

AMR is a serious threat to global public health. It requires a multi-sectorial and multi-disciplinary approach to tackle the problem as antimicrobial resistant microorganisms can be transmitted through the food supply chain, the environment, and direct contact between animals and humans.



Hosting distinguished visitors

SFA hosts foreign dignitaries and officials regularly to share and discuss ways to safeguard and enhance food security.

List of visitors hosted

6 July 2022

H.E Marc Abensour, Ambassador of France

20 July 2022

H.E. Suryo Pratomo, Ambassador of Indonesia



25 August 2022

H.E Behnam Bolourian, Non-Resident Ambassador of Iran

6 September 2022

Hon. Alannah MacTiernan, Minister for Regional Development, Agriculture and Food, and Hydrogen Industry, Australia

4 October 2022

H.E. János Zoltan Csák, Minister for Culture and Innovation, Hungary



4 October 2022

H.E. Judit Pach, Ambassador of Hungary

11 October 2022

Jeremy Rockliff, Premier of Tasmania, Australia

13 October 2022

Professor Susan Jebb, Chair of the Food Standards Agency of the United Kingdom

28 October 2022

H.E. Rukhsana Afzaal, High Commissioner of Pakistan

2 November 2022

H.E Anneke Adema, Ambassador of the Netherlands



14 November 2022

H.E. Syed Naveed Qamar, Minister of Commerce in Pakistan



23 November 2022

H.E Anneke Adema, Ambassador of the Netherlands

25 November 2022

H.E Mehmet Burcin Gonenli, Ambassador of the Republic of Türkiye

28 November 2022

Hajah Tutiatty Abdul Wahab, Permanent Secretary of the Ministry of Primary Resource and Tourism, Brunei



▲ Top: SFA led Ms Tutiatty and accompanying Bruneian officials on a tour of our research facilities at the Marine Aquaculture Centre on St John's Island. Bottom: Officials on a visit to Barramundi Group's new sea farm off St John's Island.

2 December 2022

H.E Bernardo Ivo Cruz, Secretary of State for Internationalization, Portugal

15 December 2022

H.E Mercedes Alfonso, Ambassador of Spain

9 February 2023

Dato Dr Mohd Isham, Minister of Health, Brunei

13 February 2023

Datuk Onn Hafiz Ghazi, Menteri Besar of Johor, Malaysia



20 February 2023

Kathleen Donohue, Assistant Deputy Minister of Agriculture and Agrifood Canada, and Vice President of Canadian Food Inspection Agency

3 March 2023

Tengku Hassanah Shah, Regent of Pahang, Malaysia

27 March 2023

H.E. Magdalena Bogdziewicz, Ambassador of Poland



TRANSFORMING FOR THE FUTURE

We constantly leverage technology to improve our systems while fostering a nurturing environment and innovative culture for our people to thrive in. Together, these empower us to better serve the needs of the nation.



CHAPTER 5

TRANSFORMING FOR THE FUTURE

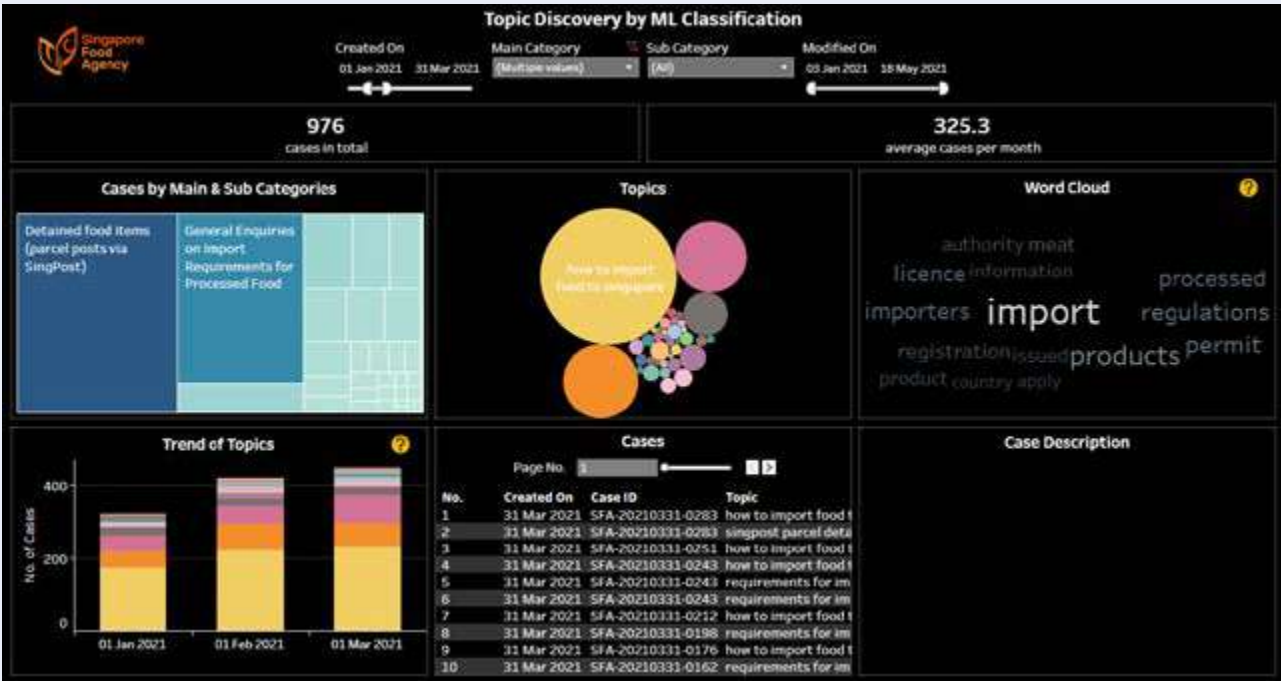
SFA continually enhances operational performance and proactively prepares for the future to ensure supply of safe food for Singapore. By empowering our officers with an innovative mindset and safeguarding their well-being, we nurture their growth so that they can be at their best while serving the nation.

Building capabilities for today and tomorrow

SFA regularly reviews and updates our processes and tools to prepare for the future. We leverage technology to enhance our capabilities and support our work.

Strengthening food safety
through data analytics

SFA completed an update to our Enterprise Data Lake (EDL) infrastructure, further supporting the development of a robust and sustainable food safety assurance model for Singapore. The update would allow users to leverage advanced text analytics to identify potential trends among public feedback and notify SFA of potential food safety threats.



About SFA's Enterprise Data Lake

EDL is part of efforts to build SFA's data analytics infrastructure and capability. It enables the visualisation of food security and food safety patterns and trends, providing a more holistic overview to optimise operations and data analysis. These visualisations are piped to SFA's Ops Centre for sensemaking and to support operations.

For example, SFA officers are better able to track and monitor the progress of licence applications and manage outstanding cases in a timely, streamlined manner.

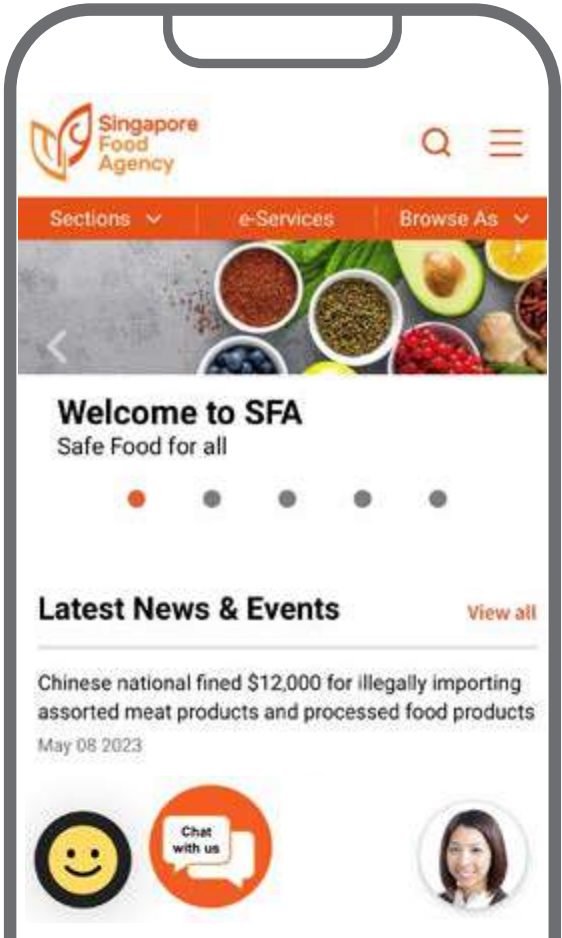
Enhancing the customer experience

Committed to delivering a seamless customer experience, SFA continually strives to improve service delivery channels.

Improving service delivery

SFA expanded our LiveChat service to handle queries across more categories in July 2022, and introduced the “Chat with us” icon on the homepage of the SFA website to encourage users to use it.

Besides providing users with quicker responses to their enquiries, LiveChat improves the productivity of SFA staff as they are able to take on multiple cases simultaneously, instead of a single phone call at a time.



▲ LiveChat provides users with real-time responses to general enquiries and feedback.



35%
of food import
queries resolved
upfront

Promoting innovation and excellence

SFA believes in instilling a culture of innovation and excellence. We also foster the sharing and exchange of scientific developments and ground-up innovation to broaden and deepen our staff’s expertise.

Recognising our officers

Ministry of Sustainability and the Environment (MSE) Excellence Day Awards 2023

This annual event celebrates excellence within the MSE family, recognising staff for service excellence, outstanding contributions, and innovative and effective practices and programmes.



SFA’s Wins

28
awards across
9
categories

★	6	MSE Service Excellence Award
★	6	MSE Exemplary Leader Award
★	2	MSE Skillsfuture Award
★	2	MSE Commendation Award
★	2	MSE One Public Service Award
★	3	MSE Regulatory Excellence Award
★	2	MSE Agility Award
★	2	MSE Dare-to-Do Award
★	3	MSE Innovator Award



MSE Innovator Award – Accurate Nisin Detection Method

Through innovation, the team established a method to test for the presence of nisin in imported dairy products after SFA was alerted to the illegal use of the bio-preservative in these products. Nisin had not been approved for safe consumption and could not be detected using conventional analytical methods.



▲ (from left to right) Dr Sheena Wee, Madam Chua Sew Lay, and Dr Yu Dingyi from the National Centre for Food Science (NCFS) accepting the award from Minister for Sustainability and the Environment Grace Fu (second from right) on behalf of the team.



MSE Dare-to-Do Award – Integrative Data Science for One Health

In collaboration with the Ministry of Health (MOH), the team pioneered a human-epidemiological study to understand the social and behavioural risk factors commonly associated with foodborne infections. This will help to strengthen SFA's future readiness by enhancing the system for joint investigation and management of food safety incidents.



▲ Ms Lim Ker Li, Scientist at NCFS, accepting the award on behalf of the team.



MSE Regulatory Excellence Award - Virtual Inspection: Retail Food Premises

Tapping on technology, SFA [streamlined the pre-licensing process](#) for new food retail establishments by conducting virtual inspections for applicants in low food safety risk categories. This initiative allowed businesses to get their licences quicker while better utilising limited resources and maintaining food safety.



▲ Mr Ng Wei Hong, Assistant Director at the Joint Operations Division, accepting the award on behalf of the team.



Public Sector Transformation (PST) Awards 2022

The PST Awards recognises agencies and officers of the Singapore Public Service for their dedication to service excellence and organisational practices.



SFA's Wins
5
PST
Awards

Citizen Engagement Excellence Award – Lim Chu Kang Master Plan Stakeholder Engagement

As part of efforts to master plan Lim Chu Kang (LCK) into a highly productive, climate-resilient, and resource-efficient agri-food hub, SFA held a series of stakeholder engagements with over 300 stakeholders from diverse backgrounds. Many innovative ideas were surfaced, some of which will be incorporated into the LCK master planning consultancy study.

- 1 Citizen Engagement Excellence Award
- 1 Agility Award – COVID Supplementary Cycle
- 3 One Public Service Award – COVID Supplementary Cycle



▲ Urban Planner Png Seow Ling receiving the award from Minister Chan Chun Sing on behalf of the team.

SFA Excellence Awards 2022

The annual SFA Excellence Awards recognise and reward SFA officers for their leadership, agility to change and innovate, service excellence, and outstanding contributions.



56
individual /
team awards
across
10
categories

- 9 SFA LEAD Award
- 4 SFA Dare-to-Do Award
- 8 SFA Innovator Award



▲ Through a series of tests, the team at the Marine Aquaculture Centre developed a solution to improve microalgae production by 20 per cent.

- 5 SFA Agility Award
- 3 SFA Science Excellence Award
- 2 SFA Adapt and Skill Up Award
- 3 SFA One Public Service Award
- 8 SFA Regulatory Excellence Award



▲ The team that developed a novel food tasting policy to allow tastings under controlled conditions to manage food safety risks while facilitating innovation.

- 4 SFA Citizen Engagement Award
- 10 SFA Service Excellence Award



Pro-Enterprise Panel-Singapore Business Federation (PEP-SBF) Awards 2022

The Pro-Enterprise Panel-Singapore Business Federation (PEP-SBF) Awards acknowledge both public and private agencies for their initiatives towards creating a pro-enterprise regulatory environment.

Public Sector Pro-Enterprise Disruptor Award 2022 – Team Award for “Diversification of Chicken Supply Sources”

During Malaysia’s chicken export ban, SFA worked tirelessly on various fronts to **secure a continuous supply of chicken for Singapore.**



▲ Assistant CEO (Operations) Dr Abdul Jalil receiving the award on behalf of the team.

EnterpriseSG – Singapore Standards Council (SSC)/ Singapore Accreditation Council (SAC) Commendation Award 2022

This award celebrates individual partners who have contributed actively to Singapore’s Standards and Accreditation programmes.



▲ Ms Khoo Gek Hoon, Director, Industry Development and Community Partnership Division (left) and Ms Jannie Wan, Deputy Director, Licensing Division (right) were recognised for their contributions to the establishment of standards pertaining to urban agriculture and food safety, and their work with SSC’s Food Standards Committee and SAC.

ICA Commissioner’s Commendation Award 2022

An inter-agency team from SFA and the Immigration and Checkpoints Authority (ICA) received the ICA Commissioner’s Commendation Award (Silver) for their excellence in data mining and successful collaboration in the targeted detection of fruit, vegetable, and processed food importers with excess or pending declarations.

Encouraging Knowledge Sharing

SFA Science Day 2022

On 7 November 2022, SFA held its fourth Science Day under the theme, “Science and Innovation for Climate Resilience”. More than 250 staff from SFA, PUB, Singapore’s National Water Agency, and the National Environment Agency (NEA) attended the event.



▲ Dr Masami Takeuchi (top) from the Food and Agriculture Organization of the United Nations and Professor Jeff Obbard (bottom) of the Centre for Climate Research Singapore shared about climate change and innovations for food safety management.



▲ Interactive exhibition booths showcased the efforts of both the industry and SFA in environmental sustainability and in safeguarding Singapore’s agri-food industry against environmental threats.



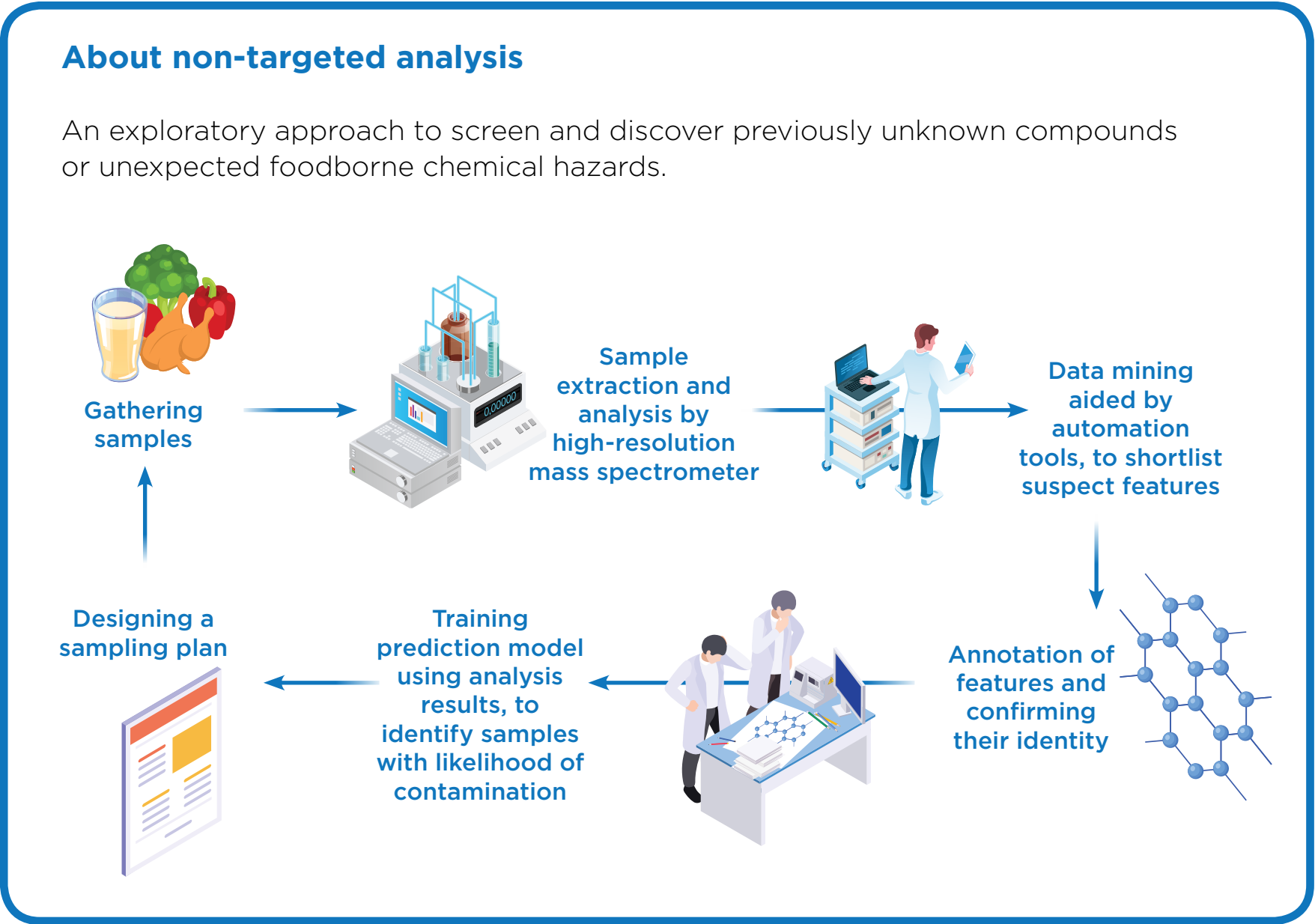
Driving Breakthrough Ideas

SFA Seed Fund

Launched in 2021, the SFA Seed Fund aims to inspire critical thinking, innovation, and cross-divisional collaboration among SFA staff. The fund has supported the successful completion of four projects charged with optimising SFA’s work for resource conservation and improvement including:

Leveraging Artificial Intelligence (AI) in non-targeted analysis to identify food safety risks

In collaboration with Agency for Science, Technology and Research (A*STAR), SFA developed a data-processing Graphical User Interface (GUI) to more accurately and efficiently identify potential chemical risks for prioritised screening. The GUI bypasses complex and time-consuming workflows in non-targeted analysis by utilising automation and predictive tools to semi-automate the process.



500

manhours
saved annually

Improved
accuracy
in data
processing

Early alert for
potential food
safety risks



Caring for our people and the community

Our officers are integral to SFA’s mission. We support their growth and safeguard their mental and physical wellbeing by creating opportunities to rest and recharge. We also care for our community and regularly organise welfare and recreational activities for staff to participate in and play a part.

Initiatives for Mind & Body Fitness

Encouraging mental wellness

- Uninterrupted time, such as meeting-free days, where officers can focus on work or attend programmes for personal development
- Staying Well email series on mental wellness tips and resources
- Workshops on empowering techniques for managing personal wellness, stress management, and supportive leadership

Physical wellness

- Health screening and flu vaccinations
- Family-centered initiatives e.g., *Eat with Your Family Day*, *Send your Child to School Day*
- Physical activities and virtual exercise classes
- Corporate-wide participation in National Steps Challenge

Staff welfare and recreation activities, and environmental and conservation efforts

Keeping fit together

Rock Climbing at Our Tampines Hub



▲ Scaling greater heights together through our first rock climbing event.

Sports Activities such as High Intensity Interval Training, Yoga, and Kickboxing

Public Service STAR Games



▲ SFA joined Team MSE in the badminton tournament games.

MSE Vertical Challenge, a fundraiser event as part of the President’s Challenge



▲ Building rapport and supporting the President’s Challenge as a MSE family!



Serving the community

Food Donation Drive for Food Bank: A joint initiative by SFA and the Competition & Consumer Commission of Singapore to collect food donations



Read for Books, a charity book drive by the National Library Board. For every 10 people who read for 15 minutes, one book would be donated to selected beneficiaries



▲ A physical read together session to raise awareness and share the gift of reading with the less privileged.

Caring for one another

SFA Care Pack Distribution: Customised care packs as a token of appreciation to staff and to promote staff health and wellness

Local Farm Tours for staff to learn about food production in Singapore



▲ Staff experiencing lettuce harvesting, goat feeding, and milk tasting at the Lim Chu Kang Farm Tour.

Local Produce Pack distribution: Specially curated packs featuring a variety of local produce were given out to staff

SFA Appreciation Event to recognise staff's hard work over the past year



▲ A night of fun and laughter to the Gastronomic Beats theme!



AWARDS & ACCOLADES

FROM THE PUBLIC SERVICE DIVISION (PSD)

Citizen Engagement Excellence Award 2022 - Team Award for “Lim Chu Kang Master Plan Stakeholder Engagement”

Agility Award 2022 (COVID Supplementary Cycle) – Team Award for “Building Enterprise Resilience during COVID”

One Public Service Award 2022 (COVID Supplementary Cycle) – Team Award for “Assure, Care for, and Engage Migrant Workers for Sustainable MW Management”

One Public Service Award 2022 (COVID Supplementary Cycle) – Team Award for “Project Cargo Facilitation”

One Public Service Award 2022 (COVID Supplementary Cycle) - Team Award for “Securing Essential Supplies”

FROM THE MINISTRY OF TRADE AND INDUSTRY (MTI)

Public Sector Pro-Enterprise Disruptor Award 2022 – Team Award for “Diversification of Chicken Supply Sources”

EnterpriseSG-SSC/SAC Commendation Award 2022 for Khoo Gek Hoon and Jannie Wan

FROM THE MINISTRY OF SUSTAINABILITY AND THE ENVIRONMENT (MSE)

Service Excellence Award 2023 – Team Award for “Facilitating Business Recovery while Safeguarding Food Safety for Entertainment Outlets Pivoting to F&B”

Service Excellence Award 2023 – Team Award for “Streamlining Submission Requirements for Foreign Fishing Vessels”

Service Excellence Award 2023 for Christabel Heng, Germaine Thong, Hee Ming Ni, and Syed Ali Bin Minadi Maideen

Exemplary Leader Award 2023 for A/P Joanne Chan, Dr Alvin Yeo, Sigit Gunawan, Elaine Pong, A/P Aung Kyaw Thu, and Ashraf Bin Hassan

SkillsFuture Award 2023 for Lim Jia Qi and Alex Ng

Commendation Award 2023 – Team Award for “Launch of SFA’s Inaugural Singapore Food Statistics (SgFS)”

Commendation Award 2023 – Team Award for “Accelerating the Development of Hatcheries at Sea in Singapore”

One Public Service Award 2023 – Team Award for “Project Singapore 4th Egg Farm (Project S4E)”

One Public Service Award 2023 – Team Award for “Targeted Operations on Illegal Imports of Fruits and Vegetables”

Regulatory Excellence Award 2023 – Team Award for “Virtual Inspection – Retail Food Premises ”

Regulatory Excellence Award 2023 – Team Award for “Establishing the Novel Food Tasting Policy and Insect Regulatory Framework”

Regulatory Excellence Award 2023 – Team Award for “Digitalising Licences for Retail Food Establishments”

Agility Award 2023 – Team Award for “Secure Chicken Supply during Export Ban”

Agility Award 2023 – Team Award for “Accelerated Detection and Serotyping of Salmonella Enteritidis in Shell Eggs”

Dare to Do Award 2023 – Team Award for “Enhanced Inspection Regime”

Dare to Do Award 2023 – Team Award for “Integrative Data Science for One Health”

Innovator Award 2023 – Team Award for “Accurate Nisin Detection Method”

Innovator Award 2023 – Team Award for “Business Process Reengineering Initiative”

Innovator Award 2023 – Team Award for “Use of CCTV to Support Regulatory Activities – Coastal Fish Farms”

2022 NATIONAL DAY AWARDS

Public Administration Medal (Bronze) for Angela Li

Commendation Medal for Low Teng Yong

RECEIVED BY THE NATIONAL CENTRE FOR FOOD SCIENCE (NCFS)

World Health Organization (WHO) Collaborating Centre for Food Contamination Monitoring (2020-2024) designation, received by the Food Science Rapid Response Department

ISO17025 accreditation for all testing methods in the mobile laboratory (FY2022)

World Organisation for Animal Health (WOAH) Collaborating Centre for Food Safety designation since May 2014

ASEAN Reference Laboratory for Mycotoxins designation (since 2004)

ASEAN Reference Laboratory for Pesticide Residues designation (since 2004)

ASEAN Reference Laboratory for Environmental Contaminants designation (since 2014)

ASEAN Reference Laboratory for Marine Biotoxins and Scrombotoxin designation (since 2019)



CORPORATE GOVERNANCE

The SFA Board and Leadership Team have put in place a framework to ensure good corporate governance. 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 established an organisation-wide system of internal controls, which include:

- 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.
- Independent internal audit function and external audit functions.

These internal control systems are designed to manage risks and provide reasonable assurance against fraud, material misstatement or loss.

Internal and External Audit Functions

The Internal Audit Unit operates independently in SFA, and reports to the SFA Board's Audit and Risk Committee. The Internal Audit Unit performs independent and objective reviews of the functions of SFA and 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.

SFA's accounts are audited by the Auditor-General's Office of Singapore or such other auditor that may be appointed by the Minister for Sustainability & the Environment in consultation with the Auditor-General. The external auditor engaged for the financial year, which ended on 31 March 2023, was KPMG LLP. The external auditor reports its

audit findings and recommendations to SFA Board's Audit and Risk Committee. SFA's Board approves the accounts and forwards the audited statements to the Ministry of Sustainability & the Environment and Auditor-General's Office.

Board Committees

As part of corporate governance, three Board Committees comprising Board members are formed to provide strategic advice:

- Finance Committee, for key financial matters;
- Audit and Risk Committee, for financial reporting process, internal controls and risk management; and
- Staff Development Committee, for manpower development and management.

