

# THE SINGAPORE FOOD STORY





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# WORKING TOWARDS A SUSTAINABLE FOOD FUTURE FOR ALL

ANNUAL REPORT 2021/22



Chapter 2:  
Ensuring Safe  
Food for All

Chapter 1:  
Securing Our  
Food Supply

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Facing the COVID-19  
Pandemic Head On

Chapter 4:  
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for the Future





# Vision

Safe food for all

# Mission

To ensure and secure  
a supply of safe food

# Message from the Chairman

In FY2021, we saw countries grapple with the sustained impact of the COVID-19 pandemic. The global food system's resilience in tackling climate, economic, and resource challenges continued to be tested by extreme weather patterns, disease outbreaks, growing populations, rapid urbanisation, geo-political situations, and supply chain disruptions. A report published by the Food and Agriculture Organization of the United Nations (FAO) in November 2021 urged countries to make agri-food systems more resilient to shocks of the kind witnessed during the COVID-19 pandemic.

Amidst these challenging times, we continue to advance our mission by working with various stakeholders to diversify our import sources, advance our 30 by 30 goal, and ensure that food is safe from farm to fork.

## Bolstering Food Security

As a small city state that imports more than 90 per cent of our food from over 170 countries and regions, Singapore is vulnerable to the reconfiguration

of trade patterns, as well as new shifts in global supply chains from production, storage, processing, transportation, distribution, and consumption. It is therefore important for SFA to partner food businesses and build Singapore's capabilities to manage food security risks, as well as catalyse industry transformation to be highly productive, climate resilient, and resource efficient so as to bolster food security for Singapore.

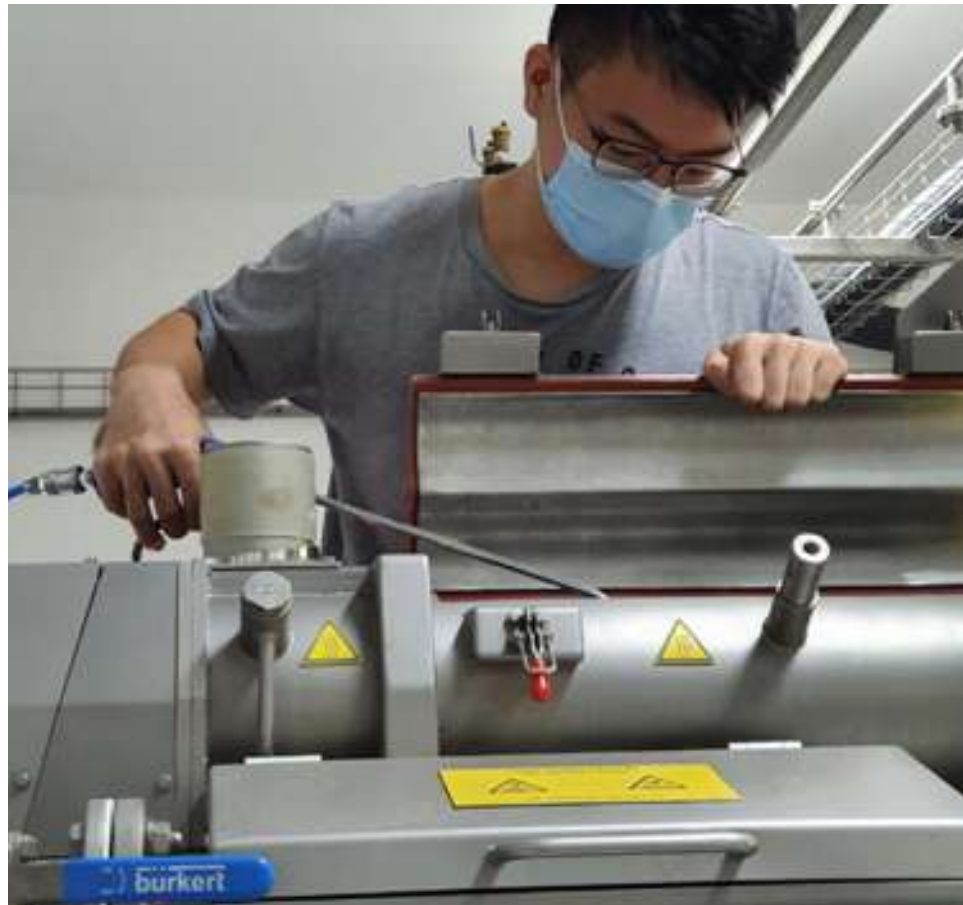


To help local farmers transform and intensify output, SFA established the \$60 million Agri-Food Cluster Transformation (ACT) Fund. This builds on an earlier incentive scheme where over \$50 million in grants was allocated to more than 130 projects. To build local capabilities in food production, the co-funding quantum under the ACT Fund was increased to cover a wider range of food types such as fruited vegetables, mushroom, and shrimps. Beyond ramping up local production, SFA encouraged local farms to adopt good practices and standards.

We are also uplifting the local aquaculture industry by providing greater certainty through longer space tenures, unlocking new sea spaces, the development of the new Lorong Halus jetty, and an Aquaculture Nutrition Facility to deepen Singapore's capabilities in fish nutrition and feed development. Also, SFA anchored ISE Food Holdings to set up a \$100 million farm in Singapore. This will increase the capacity of local egg farms to meet about half of Singapore's consumption for eggs, up from about 30.5 per cent of total egg consumption in 2021.



We also made good progress on the Singapore Food Story R&D Programme, where \$144 million was allocated to support innovative research projects in sustainable urban food production, future foods, and food safety science. Around \$75 million has been committed to over 30 projects so far and we are building on existing efforts to develop the next phase to address new challenges and open up fresh opportunities.



↑ The Aquaculture Nutrition Facility at the Marine Aquaculture Centre.

In addition, we launched the SG Fresh Produce Badges to raise awareness and encourage greater support of our locally farmed produce. The badges feature the Good Agricultural Practices scheme for quality assurance and the new 'Clean and Green' scheme for sustainable production.



### Strengthening Food Safety Assurance

The number of illness cases related to foodborne outbreaks is low, with no more than 26 cases per 100,000 population in FY2021. As the national authority for food safety in Singapore, we have in place a regulatory regime that takes a science-based risk management approach while advocating joint responsibility with the industry and consumers in food safety assurance. This has enabled us to protect consumers from unsafe food through targeted food recalls, tightening of upstream import control and local manufacturing food safety measures, as well as engagement of the industry on their food safety



protocols. Through our multi-pronged approach, a total of 19 food recalls were conducted and 45 food establishments were suspended for unsafe food practices in FY2021, compared to 21 food recalls and 60 suspensions in FY2020.

We have also continued to build an enabling ecosystem for greater joint responsibility in food safety. Our Laboratory Recognition Programme (LRP), where we work with third-party laboratories to strengthen and broaden their food testing capabilities to serve the food industry, is working well and has led to 80 per cent reduction in lead



time for food export certification. We are working on other recognition programmes for inspection and audit that will help Singapore build local testing, inspection, and certification capabilities for food safety beyond SFA.

New food sources and production systems such as novel foods can offer potential solutions for

food security and contribute to our 30 by 30 goal. However, such food innovations do not have any history of consumption nor food safety records. Hence, we have the dual challenge of providing adequate space for such food innovations to transform our food system, while protecting our consumers. To create a pro-business food regulatory ecosystem that supports food innovation and allows

safe novel foods to be launched, SFA partnered the Nanyang Technological University and the Agency for Science, Technology and Research to establish the Future Ready Food Safety Hub (FRESH). This extends SFA's earlier efforts in novel foods, which saw Singapore become the first country in the world to approve the sale of cell-cultured meat. On the international front, SFA has joined a multi-lateral collaboration with the FAO to identify food safety hazards associated with cultured meat, and interventions required by regulators and the industry.

### Involving the Industry and Community

As part of SFA's stakeholder engagement efforts to write the next chapter of our Singapore Food Story together, SFA engaged the industry and public stakeholders to co-create and shape plans for the Lim Chu Kang (LCK) area, where many of our food farms are located. Ideas on how LCK could be transformed into a sustainable and vibrant agri-food production hub (e.g. shared infrastructure) are currently being studied as part of the master-planning process. SFA also engaged sea-based farmers to seek their views on how we can enhance our aquaculture industry and co-develop the Singapore Aquaculture Plan.



↑ Launch of the Future Ready Food Safety Hub (FRESH). Credit: NTU Singapore.





↑ A virtual stakeholder engagement session for the Lim Chu Kang Masterplan.

We also developed materials such as videos and articles to enhance the public's knowledge of food safety risks and safe food practices. This complemented other food safety education resources published on our website such as information guidelines on how food should be selected carefully, washed cleanly, stored safely, and grown safely in community farms. In FY2021, SFA organised a total of 15 industry engagement sessions and 18 talks involving schools and the community.

## Shaping SFA's Culture

To achieve our mission, we need to deepen the right capabilities, be risk-aware, and shape the appropriate behaviours within the organisation. Through a year-long consultation exercise, important capabilities in areas such as operations, science, and corporate functions were identified through the inaugural SFA Strategic Workforce Planning exercise. We also developed an Enterprise Risk Management Framework to build a strong risk management culture by identifying key operational and strategic risks, developing a proper risk governance structure and appointing Risk Management Champions. We have also introduced a new Science Excellence Award to recognise officers for their scientific and R&D ideas, to spur an innovative culture within SFA.

## Working Together to Ensure a Supply of Safe Food

While the mission of ensuring and securing the supply of safe food is challenging, I am confident that we can overcome these challenges with the continued close collaboration and joint responsibility between SFA, businesses and consumers. Let us continue to work together and play our part to choose local produce, be open to different food options, and adopt good food safety practices.

**Mr Lim Chuan Poh**  
Chairman





# Board of Directors



1

**Mr Lim Chuan Poh**  
(Chairman)



2

**Mr Lim Kok Thai**



3

**Mr Andrew Kwan**



4

**Ms Han Yong May**



5

**Dr Ho Kim Wai**



6

**Mr Krishnan Muthappan**



7

**Prof John Lim**



8

**Mr Jim Lim**



9

**Mr Ong Chao Choon**



10

**Mr Pier Luigi Sigismondi**



11

**Ms Thien Kwee Eng**



12

**Mr Mohd Fahmi Bin Aliman**



### 1 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 MINDEF
- 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)

### 2 Mr Lim Kok Thai

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

### 3 Mr Andrew Kwan

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

- Chairman, Aquaculture Innovation Centre (till 31 Jul 2021)
- 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
- Member, Committee Against Profiteering, Ministry of Trade and Industry
- 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.

### 4 Ms Han Yong May

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

### 5 Dr Ho Kim Wai

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

### 6 Mr Krishnan Muthappan

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

### 7 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
- Board Member, St Andrew's Mission Hospital
- Council Member, Advertising Standards Authority of Singapore
- Council Member, US Pharmacopoeia Council of the Convention & Chair, Asia-Pacific Regional Chapter
- Executive Board Member, APEC Life Sciences Innovation Forum
- Advisory Board Member, APEC Harmonization Center
- Advisor, Mobile-health Network Solutions
- Member, Leadership Group of Davos Alzheimer's Collaborative

### 8 Mr Jim Lim

- Consultant, Intellectual Property and Technology, Withers KhatterWong LLP

### 9 Mr Ong Chao Choon

- Partner, PricewaterhouseCoopers and related entities
- Board Member, Art House Limited (till 31 May 2021)
- Board Member, Community Foundation of Singapore
- Board Member, Lee Kuan Yew Fund for Bilingualism

### 10 Mr Pier Luigi Sigismondi

- President, Worldwide Packaged Foods, Dole Asia Holdings Pte. Ltd.
- Executive Chairman, Sustenir Group Pte Ltd
- Sub-Committee Member, Future Economic Council – Resource and Environmental Sustainability Cluster

### 11 Ms Thien Kwee Eng

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

### 12 Mr Mohd Fahmi Bin Aliman

- Director, Operations Department, National Trades Union Congress
- Executive Secretary, Supply Chain Employees' Union



# Leadership Team



**Mr Lim Kok Thai**  
Chief Executive Officer



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



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



**Ms Kho Soo Pei**  
Senior Director,  
Corporate Development  
Division



**Mr Ken Cheong**  
Senior Director (Designate),  
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



**Dr Abdul Jalil**  
Senior Director,  
Joint Operations  
Division



**Dr Ng Hoon Tong**  
Acting Senior Director,  
Science & Technology  
Division



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



**Ms 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



**Ms Siti Suriani**  
Senior Director,  
Licensing Division



# Organisational Chart



# FORGING A SECURE FOOD FUTURE TOGETHER








## SECURING OUR FOOD SUPPLY

We ramp up local food production and continuously look for new food sources amidst global and regional challenges. Planning ahead ensures that Singapore will have a stable supply of safe food.





# CHAPTER 1: SECURING OUR FOOD SUPPLY

	<b>Per Capita Consumption</b> (Jan-Dec 2021)	<b>Import volumes</b> (Jan-Dec 2021)
Hen shell eggs 	<b>390</b> pieces	<b>1,494</b> million pieces
Vegetables 	<b>100</b> kg	<b>544,400</b> tonnes
Seafood 	<b>22</b> kg	<b>128,200</b> tonnes
Meat (i.e. chicken, pork, beef, mutton) 	<b>62</b> kg	<b>396,900</b> tonnes
Fruit 	<b>76</b> kg	<b>433,100</b> tonnes

For hen shell eggs, figures are rounded to nearest ten.

For hen shell eggs, figures are rounded to nearest million. For other food items, figures are rounded to nearest hundred.

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




## Major sources of supply of most commonly consumed food items (Jan-Dec 2021)



### Top 3 supply sources of most commonly consumed food items (Jan-Dec 2021)

Hen shell eggs 	 Malaysia	 Singapore	 Poland
Vegetables 	 Malaysia	 China	 Australia
Seafood 	 Malaysia	 Indonesia	 Vietnam
Meat (i.e. chicken, pork, beef, mutton) 	 Brazil	 Malaysia	 Australia
Fruit 	 Malaysia	 China	 South Africa

### Local farm production (Jan-Dec 2021)

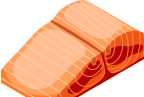
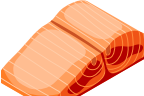




	Production volume (Total)	As a percentage of consumption
Seafood <sup>^</sup> 	4,900 tonnes	7.8%*
Vegetables 	23,500 tonnes	4.3%
Hen shell eggs 	643.7 million pieces	30.5%

<sup>^</sup>Refers to local farm production figures only. It does not include local landings (310 tonnes in Year 2021)

\*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 hundred

### Licensed food farms in Singapore (April 2021 – 31 Mar 2022)

Sea-based	
Fish 	111
Land-based	
Fish 	24
Leafy vegetables 	110
Beansprouts 	6
Hen and quail eggs 	5
Other general agriculture farms (e.g. goat, frog, shrimp, cattle, food crops) 	9
<b>TOTAL</b>	<b>265</b>



## Basket 1: Diversifying Import Sources

Singapore imports 90 per cent of our food from over 170 regions and countries. Our importers leverage the nation’s connectivity and global free trade environment to import from multiple sources. Should there be a disruption to any one source, we can tap on alternative sources so that our food supply remains stable.

### Accrediting new import sources

SFA actively accredits new import sources to support the diversification of our supplies, while making sure that food is safe for consumption. Food products must be imported from sources that meet our food safety and animal health standards and requirements. Our food importers are also licensed or registered, while consignments of imported food are required to be accompanied by import permits. Such practices ensure accountability and food traceability, and facilitate food recalls if infringements are found.

### New accreditations of sources of meat, eggs, and livestock (live poultry) (FY 2021)


**99**  
Establishments  
accredited

**44**  
Farms  
accredited

**6**  
Farms  
reinstated

**9**  
Farms  
suspended

### Licensing and registration of importers (FY 2021)

	Licences / registrations (Total)	Import permits (Total)
Meat & meat products 	2,891	24,958
Fish & fish products 		179,658
Fruit & vegetables 	1,449	278,707
Processed food 	12,328	538,819
Egg & egg products 		11,912
<b>TOTAL</b>	<b>16,668</b>	<b>1,034,054</b>

## Basket 2: Boosting Local Production

Local food production plays a key role in mitigating the impact of import disruptions. With climate change and global events causing disruptions to food production worldwide, local farms have to transform to become productive, climate-resilient, and sustainable. This is part of our 30 by 30 goal, where we work towards building our agri-food industry's capability and capacity to sustainably produce 30 per cent of our nutritional needs by 2030.

### Licensing & registration of local farms & establishments (FY 2021)

	No. of licences (total)	No. of registrations (total)
Farm	265	-
Processing / manufacturing	1,526	-
Slaughterhouses (poultry, pig, frog, turtle, & crocodile)	20	-
Central kitchen	351	-
Cold store	222	-
Retail	49,770	-
Warehouse	-	1,325

### Planning farm spaces for the long term

Given our limited land and resources, we face competing needs for land use, such as housing, industry, and transport infrastructure. Less than one per cent of land is available for agri-food production in Singapore. As such, we need to optimise the use of our available space for food production as we work towards our 30 by 30 goal. This includes planning farm spaces strategically, and working with the industry to develop more productive and sustainable ways to farm.

### Furthering progress on the Lim Chu Kang Master Plan

SFA made further progress in the holistic exercise to master plan about 390ha of land in Lim Chu Kang (LCK) to create a high-tech, highly productive, and resource-efficient agri-food hub. To co-create the LCK masterplan, we held a series of stakeholder engagements with over 300 stakeholders from diverse backgrounds. The engagements were conducted over three phases, with proposals presented to the Minister and Minister of State (MOS) for Sustainability and the Environment, Ms Grace Fu, and Mr Desmond Tan.



## Stakeholders



Farmers



Nature  
groups



Grassroots  
leaders



Industry  
associations



Institutes of  
Higher Learning



Members of  
the public



Urban food  
solution  
providers



Master  
planning  
consultants



Public  
officers

## Lim Chu Kang Master Plan Engagement Series

### Three Phases of Engagement

#### Phase 1 - Consultation

Discussing priorities and trade-offs for LCK, insights, and pain points

#### Phase 2 - Building Consensus

Distilling ideas from Phase 1 into five themes for further discussion:

- Industry and the Ecosystem
- Climate Resilience and Sustainability
- Research & Development (R&D)
- Education and Training
- Attractiveness, Vibrancy, and Accessibility
- Branding LCK and putting Singapore on the world map

#### Phase 3 - Co-Creation

Further distilling themes into four topics:

- Economics
- Experience
- Engagement
- Environment

Participants developed proposals for each of these topics and eventually presented them to Minister Grace Fu and MOS Desmond Tan.



↑ Participants deep in discussion at a physical session conducted at SFA with MOS Desmond Tan during the third phase of engagements.



↑ Minister Grace Fu joining in the discussions at the physical session held at the Ministry of Sustainability and the Environment (MSE) Hall for Phase 3.



↑ A virtual session during Phase 1.

## Ideas that Stemmed from the engagement

- Develop infrastructure to support productive farming and establish shared facilities such as waste treatment plants or packing facilities to enable farms to reap economies of scale
- Introduce circular economy principles (e.g. by-products of farms as inputs for other parts of the agri-food eco-system)
- Leverage existing rich nature in the area (e.g. Sungei Buloh Wetland Reserve and Kranji Marshes) to become a green attraction
- Organise educational tours of the farms as well as farmers' markets for Singaporeans to learn more about our agri-food sector and local produce

Check out the [final report here](#)



The proposals will be studied further for incorporation into the LCK Master Plan, where feasible.

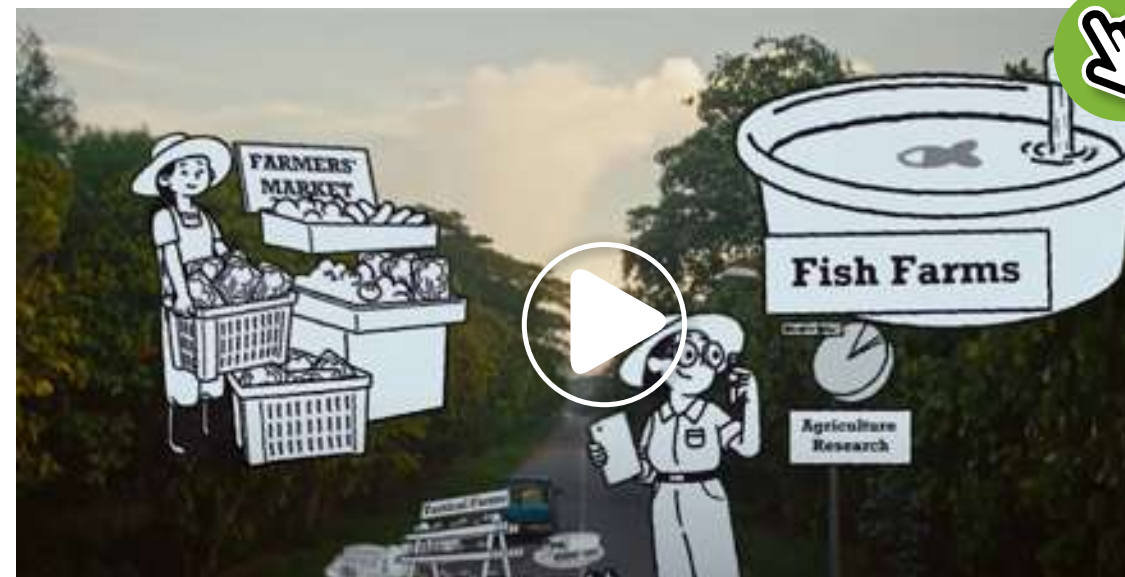


Following the engagements, SFA launched the first stage of the tender for the master planning consultancy to carry out the concept design for the LCK Master Plan.



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Proposals received from local and international firms



The shortlisted teams will proceed to the second stage of the tender to develop preliminary concept master plans, taking into consideration ideas from the stakeholder engagements.

↑ Participants envisioned Lim Chu Kang as a destination that would attract global best-in-class agri-food companies and workers, which Singaporeans would be excited to visit.



## Moving towards sustainable fish farming

SFA actively engaged the industry as part of the Singapore Aquaculture Plan to support the sector's transformation into a highly productive, climate-resilient, and resource-efficient one. This includes tapping on technology and adopting appropriate farm management methods.



↑ MOS Desmond Tan giving his opening address at an engagement session for fish farmers.



↑ Engagement with fish farmers on the Singapore Aquaculture Plan at the JEM Auditorium, where fish farmers learned about the water quality studies being done and support available to help them adopt good farming practices.



↑ Active dialogue with MOS Desmond Tan during the engagement with fish farmers on topics such as government support for the sector's transformation.

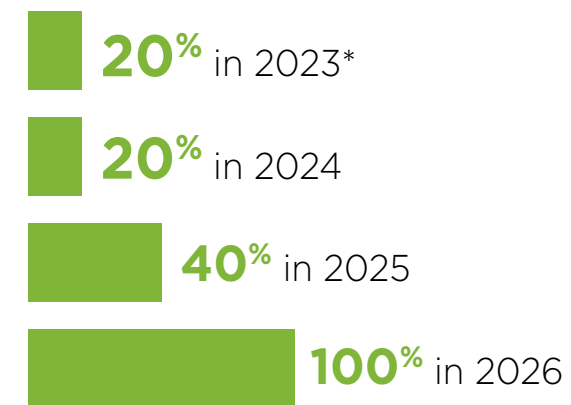
To further the Singapore Aquaculture Plan, the following were announced at the Committee of Supply Debate 2022:

### 1. Providing greater certainty for investments in agri-spaces

New agri-land and sea spaces will be tendered out on 20+10 year leases from end-2022, to give farmers a longer runway to amortise investments in high-tech, productive, and sustainable farming systems.

### 2. Transforming the aquaculture industry

To optimise sea space use and give farmers greater certainty over their sea space tenure to make informed business decisions, existing sea-based farms will transit to a lease mechanism, starting with Temporary Occupation Licences (TOLs). With effect from 1 January 2023, TOL charges will be phased over the next four years:



\*Waived in line with Government's commitment not to increase fees/charges for 2023



↑ Photo credit: Ministry of the Environment and Water Resources.



## Enhancing aquaculture biosecurity to prevent diseases

SFA established plans to strengthen aquaculture biosecurity in Singapore and will work with farms to implement them, in order to improve farm management processes and prevent diseases. We communicated these plans to farms through engagements, where farms agreed on the importance of implementing biosecurity measures and requested for training and support. We also developed guidelines for good farm biosecurity and shared them with farms. We will continue to conduct regular talks and workshops for farms to adopt good aquaculture practices.



↑ An aquaculture seminar for fish farms on water quality and management for fish health.



↑ SFA's vets work closely with farms to strengthen aquaculture biosecurity through good aquaculture practices.



↑ Proper farm management measures are crucial in preventing diseases in fish as Singapore optimises its aquaculture spaces to boost productivity.



## Exploring new aquaculture sites in Southern Waters

SFA completed the initial phases of the site assessment and environmental impact assessment study of the Southern Waters. We commenced engagement with nature groups, academics, key stakeholders, and the public on the study's findings, and will be taking their feedback into consideration to ensure aquaculture in the Southern Waters is conducted in an environmentally sustainable manner.

## Building infrastructure to support farms' operations



↑ Two new roads, Sungei Tengah Lane and Sungei Tengah Close, were officially opened for public use on 7 September 2021. The roads connect to the existing main roads and serve as an access point to new agriculture plots in the area.



## Exploring alternative spaces for urban farming

Besides rejuvenating under-utilised spaces in Singapore, urban farming also brings food production closer to the community. As such, SFA works across government agencies to avail alternative spaces for urban farming. This creates possibilities and opportunities for new farming models, ideas, and technologies.

### Availing multi-storey carparks for farming

SFA awarded the tender for seven Housing & Development Board (HDB) Multi-Storey Carpark (MSCP) rooftop sites for urban farming over the past year. The sites will be used for farming vegetables and other food crops, as well as for other related purposes, such as the packing or storage of produce. The farms are expected to produce about 680 tonnes of vegetables collectively.



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Total number of HDB  
MSCP urban farms in  
Singapore



↑ A bird's eye view of a MSCP rooftop farm.



↑ Technology including hydroponic systems, multi-tier seedling cultivation, and mobile gully systems will be used on these farms.



## Working with the industry

SFA works extensively with the industry and stakeholders to strengthen Singapore's food security.

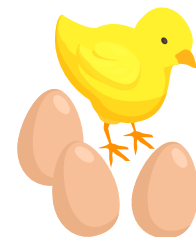
### MOU signing of Singapore's fourth egg farm

On 10 September 2021, SFA and ISE Foods Holdings (IFH) signed a Memorandum of Understanding (MOU) for IFH to develop Singapore's fourth egg farm. When fully operational, it can increase the capacity of local egg farms to meet about half of Singapore's consumption for eggs, up from about 30.5 per cent of total egg consumption in 2021. IFH will also build up the entire ecosystem locally, from agricultural inputs such as feeds and vaccines, to Day-Old Chicks, to production of hen shell eggs. SFA will continue to support IFH as they work towards commencing operations in phases from 2024.

360  
million  
eggs

5 million  
day-old  
chicks

Projected annual  
capacity of  
Singapore's fourth  
egg farm



## Building a vibrant and innovative agri-food ecosystem

R&D and technology are critical enablers as we seek to grow more with less, sustainably, in pursuit of our 30 by 30 goal. To catalyse food innovations and develop Singapore as an agri-food hub for food technologies, we work actively alongside the industry by providing funding support while updating our regulatory framework and building food safety science and R&D capabilities to ensure food safety.

### Overview of 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:

**\$144 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 Agriculture Productivity Fund\* and ACT Fund

(cumulative as at end of FY 2021)

**\$52.7m**

APF amount committed

**\$0.7m**

ACT Fund amount committed

**\$30m**

APF amount disbursed

**\$0**

ACT Fund amount disbursed

**232**

APF projects approved

**8**

ACT Fund projects approved

**185**

APF projects closed

**0**

ACT Fund projects closed

\*The Agriculture Productivity Fund (APF) was launched in 2014 to help local farms modernise and harness innovative, sustainable technology, and advanced farming systems, as well as co-fund test-bedding of technology. It was replaced by the ACT Fund in April 2021.

### Key productivity outcomes by APF recipients

(cumulative as at the end of FY 2021)

**374,011**

Man-hours saved

**1,766 tonnes**

Increase in production of leafy vegetables

**700 tonnes**

Increase in production of food fish

**117 million pieces**

Increase in production of hen shell eggs



## Fuelling further innovation through the Singapore Food Story (SFS) R&D Programme

SFA launched the second cycle of the SFS R&D grant call in November 2021.

Under the Research, Innovation and Enterprise (RIE) 2020, \$144 million was allocated to the SFS R&D Programme to catalyse R&D in sustainable urban food production, future foods, and food safety science and innovation. Around \$75 million has since been awarded to over 30 projects.

To guide the SFS R&D Steering Committee on the long-term plans and strategic direction for the Programme, SFA also appointed 12 esteemed professors and industry experts to the SFS Scientific Advisory Panel.



↑ The SFS Steering Committee, chaired by SFA Deputy CEO (Corporate, Industry and Technology), Mr Chan Hian Lim, and A\*STAR Assistant Chief Executive, Biomedical Research Council, Prof Ng Huck Hui, had an engaging discussion with the SFS Scientific Advisory Panel on the National Food Science & Technology Masterplan on 4 October 2021.

## Capturing emerging opportunities through the National Food S&T Masterplan

SFA is also working closely with various government agencies, companies, Institutes of Higher Learning (IHLs), and research institutes to develop the National Food Science & Technology (S&T) Masterplan. This Masterplan builds on the SFS R&D Programme and includes new priorities and emerging opportunities for Singapore to better address challenges facing food security such as global food supply chain disruptions, and develop new capabilities to ensure food safety amidst the emergence of novel food such as alternative proteins.

On 2 November 2021, we organised the inaugural S&T workshop to engage the leadership of IHLs and research institutes. We shared the preliminary National Food S&T Masterplan and discussed how the research community could align its efforts to deepen the capabilities of Singapore's food sector in support of our 30 by 30 goal.

## Setting up a future-ready food safety hub

Under the SFS R&D Programme, SFA, Agency for Science, Technology and Research (A\*STAR), and the Nanyang Technological University (NTU) jointly established a collaborative public-private platform – Future Ready Food Safety Hub (FRESH) – to build food safety science and R&D capabilities to support the new food innovation ecosystem. FRESH will close the gap in scientific capabilities for the food safety risk assessment of novel food. Launched in April 2021, it will also support talent development and capability building through strategic collaborations with local and international partners, amongst its other roles.

## Facilitating innovations in novel food

To keep abreast of developments in the novel food scene and continue facilitating food innovations, SFA updated our guidance to companies with additional details on the food safety information required for novel food safety assessments. We also introduced Novel Food Virtual Clinics, where novel food companies proactively engage SFA at early stages of their research. Such early engagements enable companies to better

prioritise resources towards productive research and minimise compliance costs and time.

## Facilitating the licensing of alternative protein production facilities

Food innovations such as alternative proteins have the potential to supplement Singapore's agricultural productivity and contribute to our 30 by 30 goal. During the year, SFA reviewed the licensing approach for alternative protein production facilities, and successfully licensed the first cultured meat production facility in Singapore as a food processing establishment after the company had complied with the assessment criteria under the Novel Food Regulatory Framework.

### SFA's novel food regulatory framework

SFA introduced the regulatory framework for novel food in 2019 to ensure the safety of such foods while facilitating food innovation. As part of the framework, companies are required to seek pre-market allowance for novel food before they are allowed for sale.

## Strengthening tropical food production potential through R&D

Through R&D, SFA drives the development of technologies and deepens Singapore's expertise in tropical urban agriculture and aquaculture. These often involve deep collaboration with the industry, IHLs, and research institutes, where SFA provides technical inputs and shared facilities. The technical know-how is subsequently transferred to farmers to improve their production capabilities.



↑ The RAS research facility at MAC.

## Building facilities to accelerate R&D in aquaculture

R&D in aquaculture was given a boost with the commissioning of a state-of-the-art experimental facility equipped with 72 tanks in Recirculatory Aquaculture System (RAS) at the Marine Aquaculture Centre (MAC). Co-funded by SFA and the Economic Development Board (EDB), the facility aims to narrow knowledge gaps and deepen our scientific understanding of aquaculture. Since its launch, nutritional trials on tropical marine species like Asian seabass, red snapper, and hybrid grouper have been conducted.



↑ The RAS is equipped with various accessories such as dissolved oxygen sensors, fish faecal collection unit, and water chiller to enable a variety of trials with different species and conditions.



## Collaborating with local farms on translational R&D

### Facilitating tech transfer to local fish farms

To help farms build new capabilities, SFA assisted in the set-up of a new floating fish hatchery by advising on hatchery system design, development of hatchery protocols, and on-site fish hatchery training of the farm staff. The hatchery will be used by farms to produce fish fingerlings.



↑ The new floating indoor fish hatchery at Singapore Aquaculture Technologies.

### Conducting joint research studies with farms

Together with farms, SFA conducted various joint studies such as a feasibility study on the culture of seaweed in local coastal waters and a method to improve the red colouration of locally farmed red snappers via feed nutrition. These projects were aimed at enhancing and sharing knowledge with other industry stakeholders. Fish farms were also invited to visit MAC to learn about SFA's R&D capabilities.



↑ MAC regularly shares its research findings and technical know-how with the industry to help improve production capabilities.

### Harnessing space technology in agriculture

In August 2021, SFA launched a collaboration with Singapore Space & Technology Limited and Genome Institute of Singapore to explore the potential of tapping on space technology as an alternative method to improve productivity in plants. The project explores the effects of microgravity and cosmic radiation on lettuce and coriander seeds sent to space, and if the changes in the seeds' genetic makeup could be useful for the indoor farming environment. Currently, results have shown that different crops react differently in the space environment, with differences noted between the growth rates of coriander that have been sent to space and those that have not.

## Developing a pipeline of local agricultural talent

The fast-growing agri-food sector will create new jobs and meaningful career opportunities for local talents in agriculture and aquaculture sciences, engineering, and info-comm technology. To support the growth of the sector, SFA facilitates structured internships and job matching, and develops upskilling opportunities for career progression. We also engage students early to introduce them to the sector and spark their interest in food production.

## Connecting workers with employers

To raise awareness of the job opportunities in the agri-food sector and to facilitate job matching, SFA guided farms to register and advertise job vacancies on the MyCareersFuture job portal. SFA also worked with farms to pool job vacancies and to post these in thematic Virtual Career Fairs. The majority of the job vacancies were filled within a month.

## Grooming the next generation of talents

To groom more talents in the agri-food sector, SFA worked with IHLs to expand the suite of training programmes and open up more career pathways. Courses were also launched to support existing workers in their career progression, as well as to enhance their expertise.

Courses launched:

- Master of Science in Biotechnology (Urban Farming Biotechnology) (National University of Singapore)
- Specialist Diploma in Agritechology and Agribusiness (Ngee Ann Polytechnic and Republic Polytechnic)
- Career Conversion Programmes for Agritech Specialist and Agritech Operator (Republic Polytechnic)
- Certificates of Competency for Agritech technicians (Institute of Technical Education)



↑ Training conducted at RP's agriculture technology laboratory. Credit: Republic Polytechnic.



## Engaging young minds early

To provide students with opportunities to gain insight into our work, SFA hosted 14 students across various agriculture and aquaculture projects. The students were involved in designing experiments, data collection, and data analysis. They also visited vegetable farms and coastal fish farms with SFA officers to observe agri-food production in action.

SFA also organised a mix of physical and virtual learning journeys to MAC for students from institutions such as Temasek Polytechnic and James Cook University. The sessions were aimed at deepening students' insights into R&D efforts and techniques that would enable the large-scale production of food fish.



↑ James Cook University Singapore students attending a learning journey session at MAC.

To nurture future leaders in the agri-food sector, SFA participated in the NTU PEAK leadership development programme (Food Sustainability Edition) by mentoring two teams of students. One of the teams, which was mentored by Dr Jiang Jun Hui from SFA, sought to promote sustainability and create demand among consumers for local aquaculture produce. The students interviewed several local farmers to understand their difficulty in promoting their produce to local consumers, and came up with creative solutions such as an app that issued rewards points when consumers purchased local produce.

## Reinforcing training for Pesticide Operators

Together with the National Parks Board (NParks) and the Institute of Technical Education (ITE) (College East), SFA developed the curriculum for a new course for Pesticide Operators. Launched in January 2022, the course takes pesticide operators through the requirements prescribed in the Control of Pesticides Act (COPA) and allows them to qualify as certified Pesticide Operators for three years.



## Spurring demand for local produce

Consumer demand for local produce is key to helping farms grow their business sustainably in support of our 30 by 30 goal. SFA campaigns actively to raise awareness of local produce and Singapore's food security. We implement standards and certification schemes to help farms brand their produce, and support farms in their outreach efforts such as farmers' markets. We also organise business matching sessions between F&B establishments and local farms.

## Recognising high-quality local produce through standards and certifications

To boost market recognition of high-quality local farm produce and promote responsible farming in Singapore, SFA worked with Enterprise Singapore (ESG) and the Singapore Manufacturing Federation - Standards Development Organisation to develop three Good Agricultural Practice (GAP) Standards:

- Singapore Standard - Specification for good agriculture practice (SS 675: 2021)
- Singapore Standard - Specification for good aquaculture practice (SS 670: 2021)
- Singapore Standard - Specification for good animal husbandry practice for layer farms (SS 676: 2021)



7 farms

certified with  
the new GAP  
standards

These GAP standards, which are aligned to regional and international standards, serve to provide guidance to local farms on a holistic approach of farm management in food safety, produce quality, environmental management, and worker health and safety. The adoption of these standards can help provide consumers with quality assurance and confidence in their purchases.

We also launched a pilot GAP certification scheme in October 2021 to endorse farms which had previously been certified with the Good Agricultural Practice for Vegetable Farming (GAP-VF), Good Aquaculture Practice for Fish Farming (GAP-FF), and Singapore Quality Eggs Scheme (SQES) as having adopted the new GAP standards.



↑ From left: As part of the GAP standards requirements, the farms use stable, non-pollutive, and pathogen-free pelleted feed which prevents overfeeding and results in lower negative impact on the seabed and water quality; Cold chain management is applied from the point of harvest, when fish are taken out of the water. This includes the use of clean packing containers and potable ice for packing.



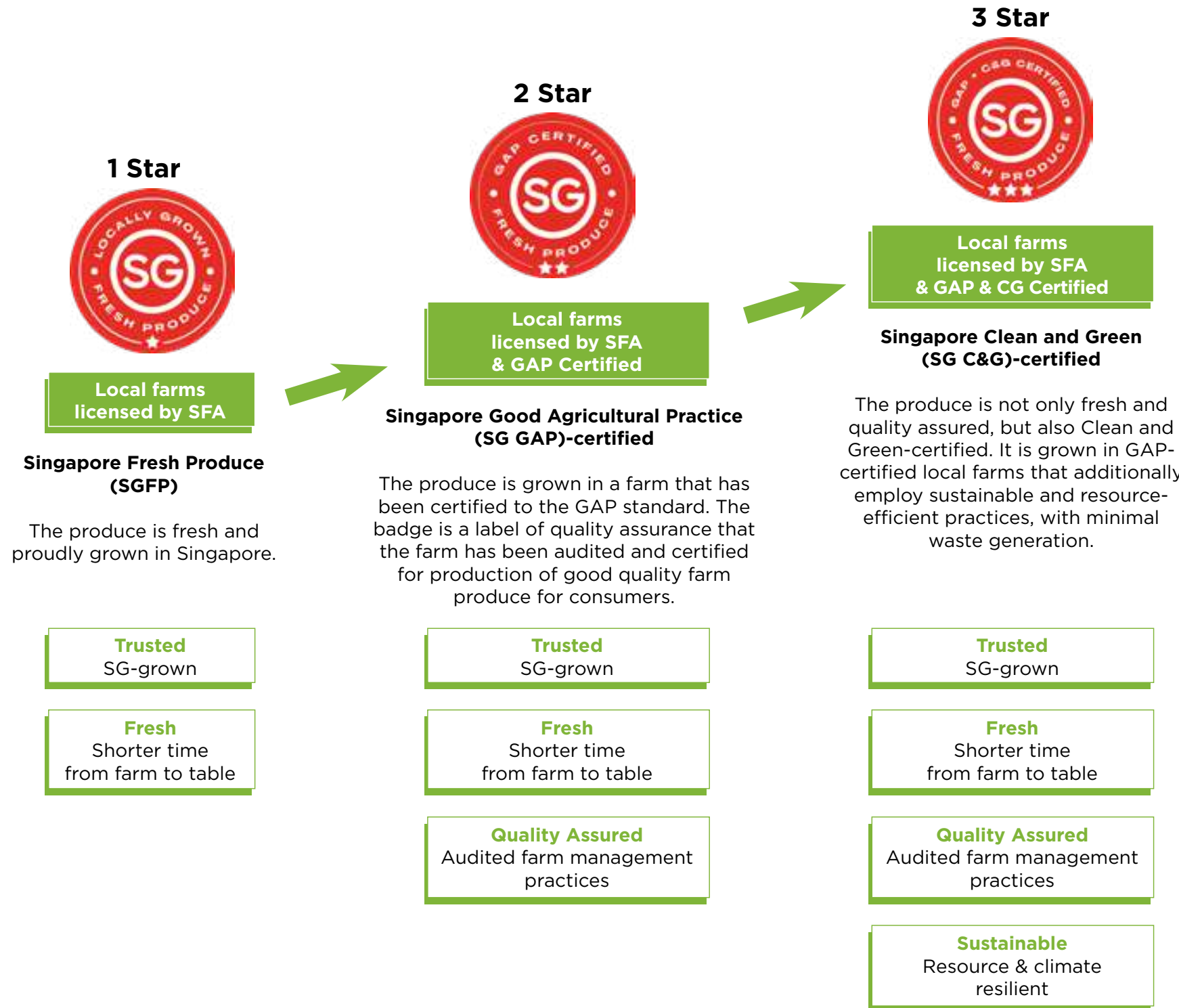
↑ Eggs are checked through a sophisticated camera system for hairline cracks and blood spots, and defective eggs are rejected in order to meet the GAP requirement.

↑ As part of GAP practice, vegetable farms have in place a pest management programme with effective control measures such as the use of protective structure (greenhouse) and sticky traps.



## Branding local produce

To help consumers identify local produce more easily, SFA launched a series of new logos as part of phase 2 of SFA's integrated marketing campaign. Through a step-up approach, the logos signify the incremental positive attributes of the local produce which bear the respective logos. This helps consumers differentiate produce from farms with certification for quality assurance or sustainable schemes, allowing them to make more informed and deliberate purchases to support local.

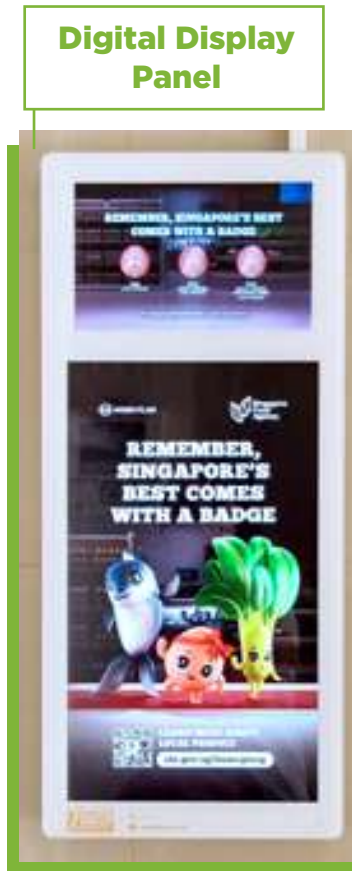




↑ A 2-Star Singapore Good Agricultural Practice (SG GAP)-certified logo on an egg packaging.



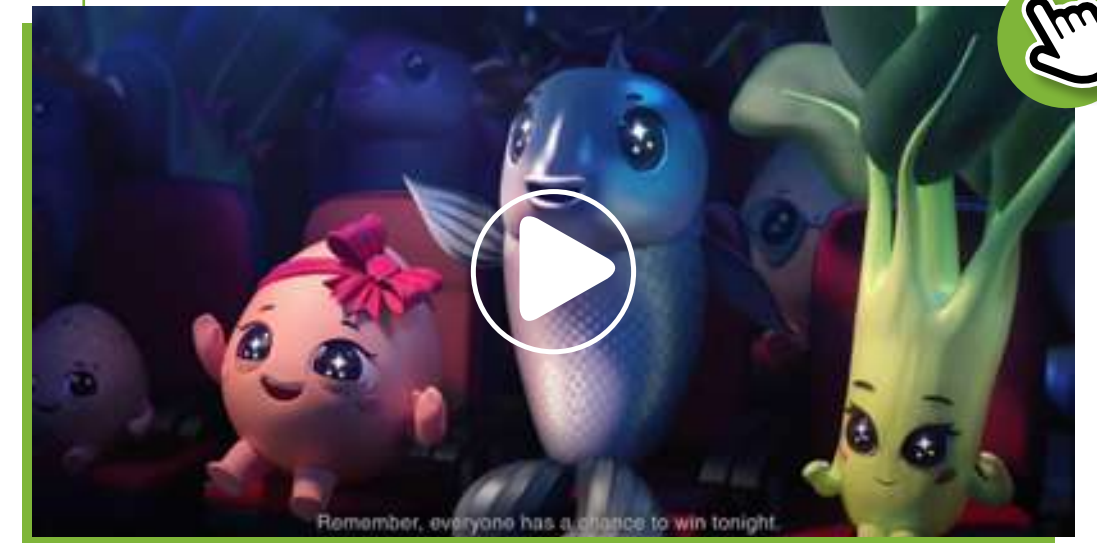
↑ Children colouring on the local produce campaign colouring cards at SFA's booth at a farmers' market.



Digital Display Panel



Bus Stop Poster Ad



Online Video



Bus Wrap

↑ Campaign visuals featuring the logos on display across various advertising platforms. Launched in February 2022, the campaign also featured characters representing Singapore's fresh produce.

Consumer awareness and purchase of local produce increased from **60% (2020)** to

**65%**  
(2021)



Source: SFA pre-campaign survey 2021



## Introducing local produce to new mothers

To promote local produce to mothers who had just given birth and encourage them to adopt local produce in their family meals, SFA launched the pilot on LoveSGMums (LSGM) Meal, an initiative to use mainly local produce as ingredients in in-patient meals in a maternity hospital. The initiative was one of six proposals that arose from the [Citizens' Workgroup \(CWG\) on Increasing Demand for Local Produce](#), and was a collaboration with the CWG project members and Thomson Medical Centre (TMC).

Launched on 18 March 2022, the initiative saw mothers warded at TMC being offered three meal options featuring local produce. These were designed by celebrity chef Justin Foo in consultation with TMC's dietician, lactation consultant, and Traditional Chinese Medicine physician.

The pilot project team also created [videos](#) and a brochure to showcase the merits of local produce. The videos were shared on social media and screened in TMC wards for patients during their stay throughout the three-month pilot.



Behind The Scenes with Thomson Medical Centre and the LoveSGMums team



Cooking with Chef Justin Foo for LoveSGMums Meal



What's cooking?



← From left to right – Chef Justin Foo shares his inspiration behind his meal creations with LSGM project lead, Ruan Lim, Ms Grace Fu, Minister for Sustainability and the Environment, and Dr Wong Chiang Yin, Group CEO of TMC at the official launch of the LSGM pilot programme.



### Provençal Style Seared Barramundi

Seared Barramundi with Kale & Basil Pistou, served with a side of Ratatouille, Olive Rice Pilaf, and Roasted Tomato Soup



### Tourte Au Poisson

Creamy Barramundi and Mushroom Pot Pie served with Kale Chips, Roasted Rosemary Potatoes, and a side of Spinach Salad with Eggs & Lemon Vinaigrette



### Mediterranean Stewed Eggs

Baked Eggs in Mushroom & Spinach Tomato Sauce served with Grilled Zucchini & Eggplants, Roasted Sweet Potatoes, and a side of Potato Egg Salad with Cornichon Remoulade

↑ Meal options served at TMC during the pilot. The post-partum meals featured locally farmed kale, spinach, mushroom, barramundi, and eggs.



### Expanding farmers' reach through virtual farmers' markets

To help farms reach a wider customer base with their produce, SFA supported the Singapore Agro-Food Enterprises Federation (SAFEF) to hold a virtual SG Farmers' Market on Lazada's RedMart livestream platform, as well as publicise various promotions on e-SG Farmers' Market, a dedicated local produce section on the RedMart online platform.

We also supported the Kranji Countryside Association (KCA) in organising virtual farmers' markets with social media influencers popular among homemakers and young mothers.



↑ A virtual farmers' market by KCA on Facebook Live.

With the gradual easing of COVID-19 safe management measures, SFA supported KCA in organising physical farmers' markets once again. Held at the Singapore Science Centre and Sprout Hub, the markets featured booths by local farms with farming-related activities and workshops. In total, both events saw close to 1,700 visitors.



↑ MOS Desmond Tan at SFA's booth promoting local produce, at the KCA x City Sprouts Farmers' Market.



↑ Children captivated by the new mascots from phase 2 of SFA's integrated marketing campaign.



↑ Families shopping for groceries at the KCA x City Sprouts Farmers' Market.

### Increasing commercial uptake of local produce

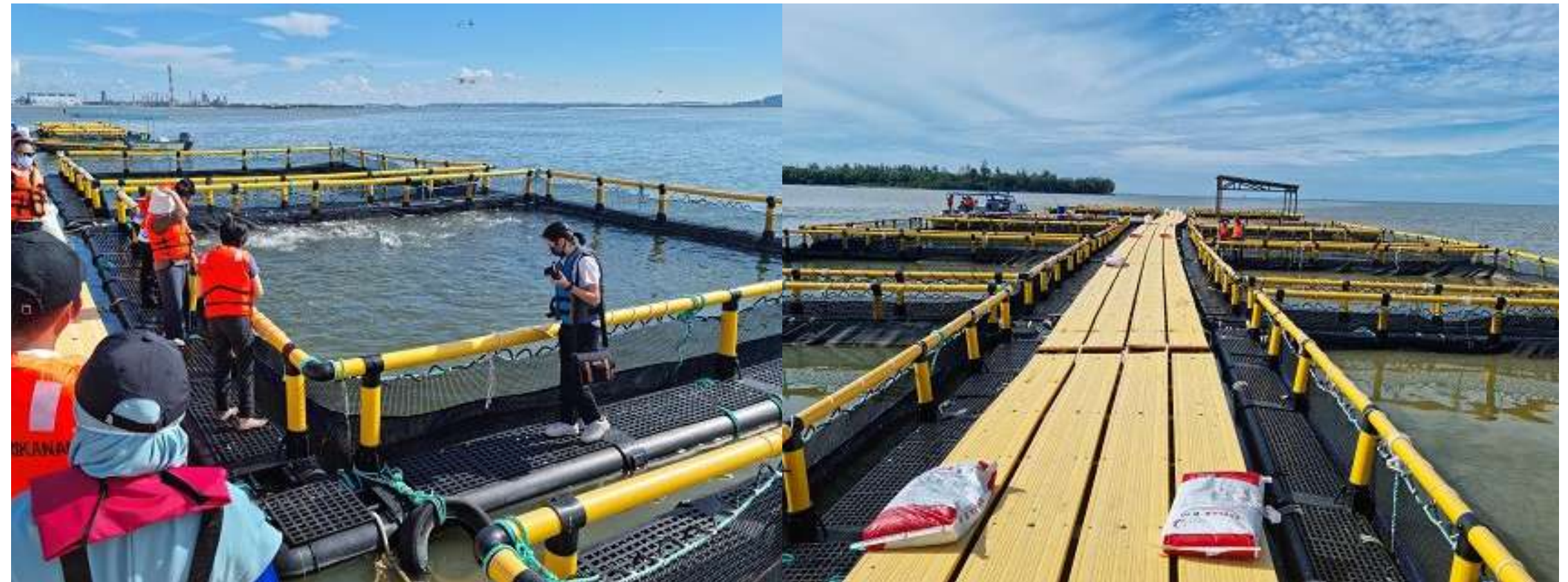
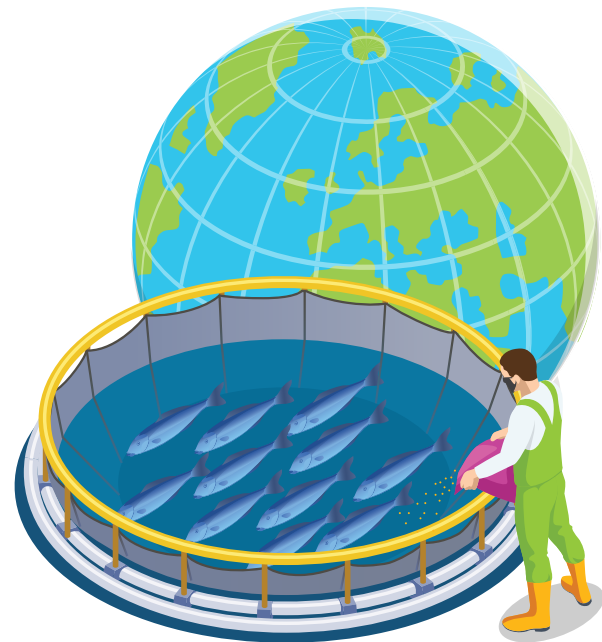
To increase F&B establishments' uptake of local produce, SFA worked with the Sentosa Development Corporation (SDC) to organise a business matching session between several F&B businesses on Sentosa and local farms. Organised as part of the Sustainable Sentosa initiative, the event saw a total of 22 farms and nine F&B establishments participate in the session.



## BASKET 3: Growing Overseas

SFA supports Singapore companies in exporting urban food solutions to other countries, so that they have access to larger markets beyond Singapore. This also enables the local agri-food sector to reap economies of scale from the larger markets.

Together with the Ministry of Sustainability and the Environment (MSE), we work with the Ministry of Trade and Industry (MTI) to help local companies venture and expand overseas. To date, local farms have ventured into countries such as Australia, Brunei, Hong Kong, Thailand, and China.



↑ Barramundi Group established its farm in Brunei in 2021.





## ENSURING SAFE FOOD FOR ALL

As food sources increase and diversify, our commitment to ensuring that our supply of food is safe for consumption is unwavering. We keep up to date with emerging food trends and use a scientific risk-based approach to food safety.





## CHAPTER 2: ENSURING SAFE FOOD FOR ALL

Singapore's food supply comes from diverse sources and undergoes various processes before reaching consumers. Coupled with the emergence of new food and food innovation, it is essential to have in place a robust food safety system.

As Singapore's food safety authority, SFA has in place a comprehensive, farm-to-fork food safety regime to ensure that our food is safe for consumption. We adopt a science-based risk management approach consistent with international standards, and continuously keep abreast of the latest scientific developments to ensure food safety. Nonetheless, food safety is a joint responsibility between the Government, food industry, and consumers, and we strive to foster an enabling environment for all stakeholders to play their part.



## Setting national standards

SFA continually monitors international developments to ensure that Singapore's regulatory requirements for food are aligned with global shifts and standards. We keep our standards updated and engage the industry regularly to seek feedback on policies, as we work together towards achieving food safety for all.



## Reviewing our Food Regulations

SFA continually reviews and enhances existing regulations in line with international standards, to facilitate trade and meet the changing needs of the industry, while safeguarding food safety.

### **Food (Amendment) Regulations 2021 Effective 1 October 2021**

SFA gazetted the following amendments:

- New food additives and ingredients, such as enzymatically produced Rebaudiosides D, E and AM and lacto-N-tetraose allowed to be used.
- Use of existing food additives, benzoates and sorbates, extended to include fruit-based desserts.
- Maximum limits for heavy metals – arsenic and lead in fats spreads and blended spread, as well as mercury in salt – amended to align with the maximum limits adopted by the Codex Alimentarius Commission (Codex).

### **Food (Amendment No.2) Regulations 2021 Effective 30 December 2022**

SFA amended the Food Regulations to introduce measures for Nutri-Grade beverages. Manufacturers, importers, and distributors of Nutri-Grade beverages intended for retail sale will need to meet several requirements, including grading their products based on the sugar and saturated fat contents. The measures will be administered by the Ministry of Health (MOH) and Health Promotion Board (HPB).





## Engaging the industry on regulatory policies and regulations

### Regulating animal feed safety

As part of SFA's review of the regulations for animal feed safety, SFA conducted a survey to understand the current practices in the animal feed industry. The industry feedback helped shape the review, which when implemented, will enhance feed safety through tightened requirements, such as product traceability and recall plans, as well as proper storage and transportation of feed products to prevent contamination. Feed traders and manufacturers who attended our engagement sessions were receptive to the update in regulations and sought clarifications to prepare for the upcoming changes.



### Phasing out sale and slaughter of frogs and turtles at supermarkets and cooked food premises

To reduce public health risks and improve food safety standards, SFA phased out the slaughtering of frogs and turtles at supermarkets, as well as the slaughtering of turtles at cooked food premises. Additionally, all establishments are now required to use chillers or freezers for cold storage of frog and turtle meat. SFA and NParks also jointly developed a set of guidelines on good practices for the housing, handling, and slaughtering of frogs in cooked food premises, to ensure that food safety and animal health and welfare standards are maintained.







### Regulating food imports

With Singapore importing more than 90 per cent of our food, it is important to regulate our food imports to ensure that they are safe for consumption, while facilitating trade and opening new trade flows. Some of our measures to mitigate food safety risks in our imports include licensing and registering our importers, as well as inspections, testing, and clamping down on illegal imports.



## Keeping Our Food Imports Safe

### Inspection, sampling, laboratory tests, compliance rates of imports (FY 2021)

	Volume inspected* (tonnes)	Value inspected* (million)	Consignments inspected	Samples collected	Lab test pass rate (%)
Meat & meat products 	4,257,713	22,120,730	15,650	9,061	98.4
Seafood products 	208,817	3,285,567	4,939	2,515	96.9
Fruit & vegetables 	3,817	7	13,182	12,309	87.0
Processed food 	24,361	708,031	3,892	2,980	94.7
Processed eggs 	519,417	1,937,663	1,339	1,288	99.7
Chicken and quail eggs 	9,561,241	25	1,265	1,251	99.8

\*rounded up figures

## Clamping down on illegal food imports

### No. of warnings, composition fines, and cases prosecuted in court (FY 2021)





## Keeping watch over local farms and food establishments

Singapore's farms and food establishments are critical nodes in Singapore's food supply chain and play a key role in ensuring food safety. SFA licenses all farms and food establishments, and regulates food storage warehouses in Singapore, to ensure that good food safety practices are in place and licensing conditions are complied with. Conversely, we enforce against illegal hawking activities as we cannot be assured that they meet our food safety requirements.

### Local farms & processing / manufacturing establishments: Overall inspection, sampling, laboratory tests and compliance rates (FY 2021)

	Inspection visits conducted	Inspections detected with non-compliance	Samples collected	Lab test passed %
<b>Farm</b>	5,781	42	1,497	97.7%
<b>Slaughterhouse</b>	1,961	76	16,317	98.5%
<b>Processing / manufacturing</b>	6,790	471	1	100%
<b>TOTAL</b>	<b>14,532</b>	<b>589</b>	<b>17,815</b>	<b>N.A</b>



### Local retail establishments & central kitchens: Overall inspection and compliance rates (FY 2021)

	No. of licences (total)	Inspection visits conducted	Inspections detected with non-compliance
Central kitchen	351	1,408	128
Retail	49,770	64,042	2,664
<b>TOTAL</b>	<b>50,121</b>	<b>65,450</b>	<b>2,792</b>



### Clamping down on illegal hawking

#### No. of warnings, composition fines, and cases prosecuted in court (FY 2021)





## Strengthening food safety competencies

To enhance the industry's food safety standards, SFA collaborated with SkillsFuture Singapore to develop a new training framework comprising four levels of Workforce Skills Qualification Food Safety Courses. The breadth and depth of the curriculum would increase through the levels.

**Level 1:** Equip food handlers with knowledge of basic food safety principles

**Level 2:** Enhance food handlers' knowledge in food safety principles

**Level 3:** Equip Food Hygiene Officers (FHOs) with the knowledge to conduct food safety checks, and on food safety Pre-Requisite Programmes and Food Safety Management System (FSMS)

**Level 4:** Equip FHOs with the knowledge to develop and implement Hazard Analysis Critical Control Points (HACCP)-based FSMS and conduct internal audits of the implemented FSMS

## Enhancing illegal hawking surveillance and enforcement processes

SFA outsourced the ground enforcement work against illegal street hawkers and transformed the operating model to improve efficiency. This allowed SFA officers to focus on upstream measures and the use of data analytics to enhance intelligence-gathering capabilities and organise targeted operations against illegal street hawkers.



↑ SFA also piloted projects to support operations by tapping on technology. For example, the autonomous patrol robot, Xavier, was piloted with the Ministry of Home Affairs (MHA) and Home Team Science and Technology Agency (HTX) over two weeks. Equipped with video analytics detection capabilities, Xavier was deployed to patrol neighbourhoods and support SFA's enforcement operations against illegal hawking activities.

## Managing food safety incidents

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



### Total number of food recalls by type (FY 2021)

Allergen	2
Chemical	8
Microbial	6
Physical	3
<b>TOTAL</b>	<b>19</b>

- 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 matter

### Major gastroenteritis incidents\* (FY 2021)

Foodborne	21
Non-foodborne	14
Inconclusive	1
<b>TOTAL</b>	<b>36</b>

\*Gastroenteritis incident investigated by agencies such as the Ministry of Health (MOH) and Singapore Food Agency (SFA)

## List of food recalls

Month	Recall Incident
June 2021	Recall of several Eat Real Puff products due to undeclared milk allergen
June 2021	Suspension of HKP Food Technology Pte Ltd and recall of products due to widespread pest infestations at premises
July 2021	Suspension of Seng Huat Bean Curd Pte Ltd's food business operations and recall of bean curd "tau kwa" due to widespread pest infestations at premises
July 2021	Recall of "Le Gall" Cream Cheese products due to presence of Ethylene Oxide
July 2021	Recall of ready-to-eat live oysters from Samish Bay, USA, linked to Vibrio parahaemolyticus outbreak in USA
July 2021	Recall of "Bubs Organic" baby rice cereal products due to excessive levels of arsenic
July 2021	Recall of "Now Foods" Royal Jelly Capsules due to detection of Metronidazole
August 2021	Recall of "KOO" canned vegetable products from South Africa due to potential canning failure
September 2021	Recall of Earthen Pot Brand Chilli powder due to presence of Aflatoxins exceeding maximum limits in the Singapore Food Regulations
October 2021	Recall and prohibition of sale and movement of Mdm Ling Bakery Mao Shan Wang Snowskin Mooncakes imported from Malaysia following gastroenteritis incidents
October 2021	Recall of Ceres 100% Juice (Apple), due to patulin detected at levels exceeding maximum limits in the Singapore Food Regulations, with extension to an additional batch of products
October 2021	Recall of Proofer bakery products due to widespread pest infestations at premises
November 2021	Recall of "Feng He Garden" products due to presence of preservatives exceeding permitted levels in the Singapore Food Regulations and undeclared preservatives
November 2021	Recall of raw Pacific oysters from the South Australia due to possible contamination with Vibrio parahaemolyticus
December 2021	Recall of Cantorel 'Plateau 5 Fromages' cheese product due to possible presence of listeria monocytogenes
February 2022	Recall of Tohato Caramel Corn Original Flavour from Japan due to undeclared almond allergen
February 2022	Recall of Abbott Alimentum and Similac powdered infant formula from USA due to possible presence of Cronobacter sakazakii and Salmonella Newport
February 2022	Recall of Delissimo Saveur Crème Brulee Ice Cream from France due to possible presence of Ethylene Oxide
March 2022	Recall of Kueh Products from Beng San Food Industry Pte. Ltd and K & B Nonya Kueh Manufacture Pte. Ltd. due to the presence of benzoic acid

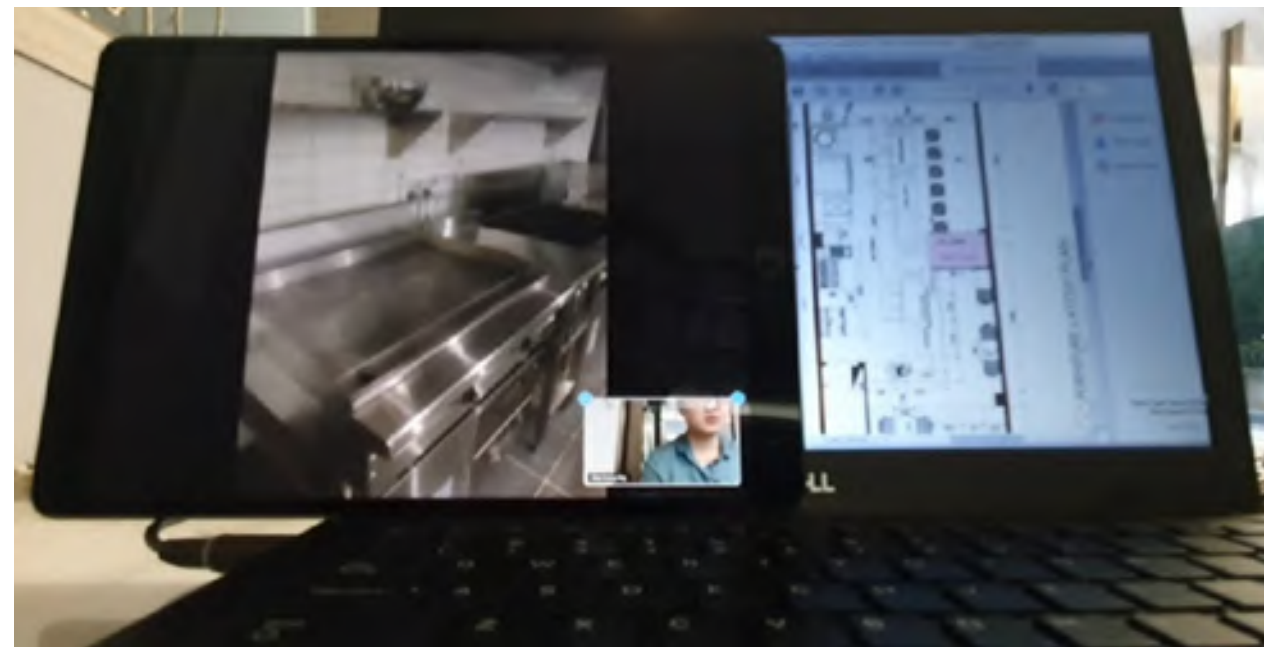


## Streamlining application processes for licensees

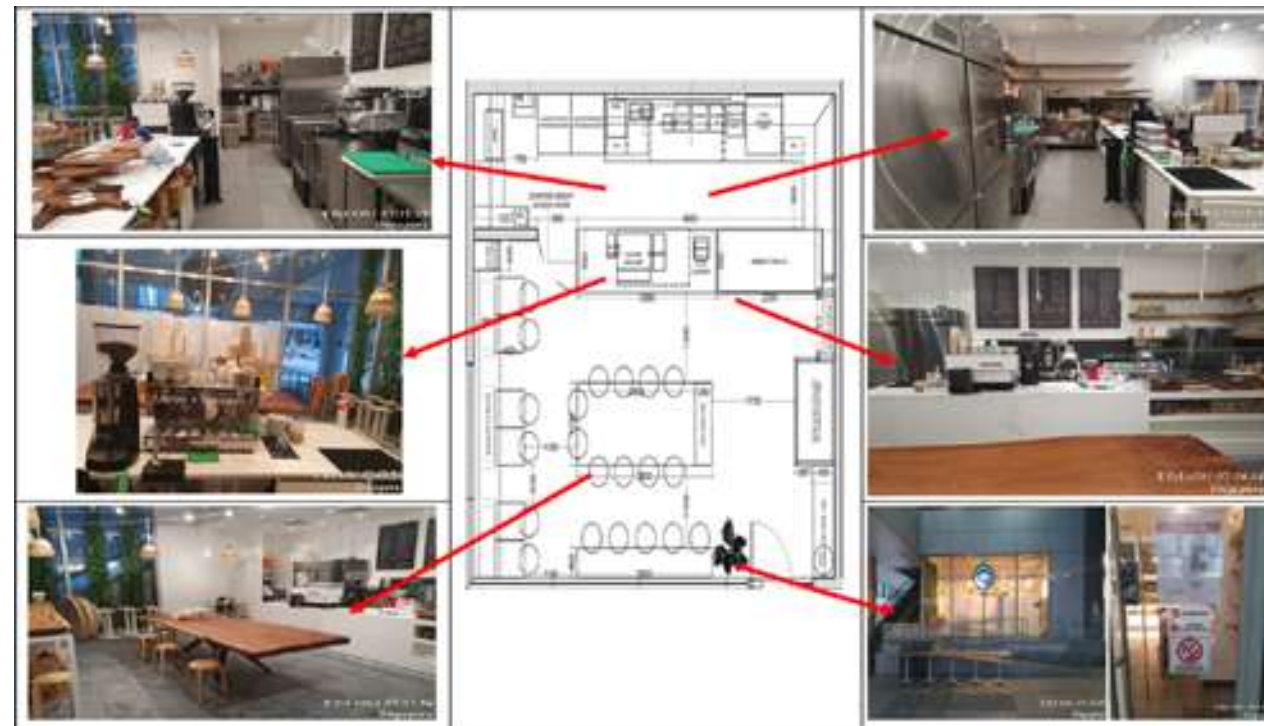
SFA continuously explores ways to enhance our work processes to better serve our licensees and reduce compliance costs, as we work together to strengthen food safety.

## Transforming pre-licensing inspections for food shops and supermarkets

To streamline the licence application process for retail establishments, SFA replaced physical pre-licensing inspections with virtual ones. Since January 2022, food establishments with lower food safety risks such as snack counters and bakeries need only submit photos of their premises to show that they have fulfilled the necessary requirements. Meanwhile, inspections for food establishments with higher food safety risks, such as food caterers and restaurants, or those with multiple stall configurations, are conducted virtually, over video calls. During the process, non-compliances are raised to the operator for rectification before the licence is approved. The move has enhanced the efficiency of the pre-licensing process significantly, enabling businesses to start operations sooner.



↑ Screenshot of a virtual inspection.



↑ Example of a photo submission.

## Moving to digital licences

To reduce the need for licensees to update and display new licences during annual renewal, SFA revised the licence template for retail food establishments to retain only permanent details such as licensee name and premises location. All other information, including licence expiry dates and track records, are now accessible digitally via a QR code on the new licence instead. The new licence, which is issued digitally for licensees to print on their own, has also reduced the waiting time for licensees to receive their new or renewed licences, allowing them to start operations sooner.



↑ The new licence on display at a food establishment.



## Monitoring and Testing for Food Safety

### About The National Centre for Food Science (NCFS)

SFA's National Centre for Food Science (NCFS) is the national reference laboratory on food science. It 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.

NCFS 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.



### Volume of tests conducted (FY 2021)

	No. of samples tested	No. of laboratory tests performed	No. of results obtained
Import Control	37,405	186,535	3,708,611
Surveillance	37,731	153,523	825,639
<b>TOTAL</b>	<b>75,136</b>	<b>340,058</b>	<b>4,534,250</b>



### Enhancing testing and diagnostic capabilities



339

Total number of tests that NCFS has attained accreditation for

#### Partnering the industry to support food testing needs

SFA developed the Laboratory Recognition Programme (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. The programme also serves to promote acceptance of SFA’s recognised laboratories’ test results by providing a mark of assurance on the quality of such results.



↑ The LRP certification mark was gazetted on 31 January 2022 and enables identification of the laboratories’ recognition status.

### Developing capabilities to detect and combat food safety threats

#### Developing new detection capabilities

NCFS developed new capabilities to detect mercury contamination issues early in indoor vegetable farms which use LED lights. This followed holistic sampling and testing efforts, after several fresh produce samples from an inspection of a pilot hydroponic indoor farm were found to have high levels of mercury. Through multidisciplinary examinations, NCFS determined a specific component in LED modules – the polymeric encapsulant – to be the source of mercury contamination. To prevent similar issues from recurring, NCFS acquired a highly sensitive, portable mercury vapour analyser to conduct a round of on-site mercury checks in all local indoor vegetable farms. Farms where LED modules were found to be contaminated with mercury were required to replace the problematic LED modules, to ensure the safety of their produce.

#### Strengthening genome monitoring capabilities

NCFS strengthened and extended our in-house whole genome sequencing capabilities to cover more foodborne pathogens for foodborne outbreak investigations. This included participating in a proficiency test organised by the One Health European Joint Programme to benchmark our whole genome sequencing analytical capabilities with 14 other international food and public health institutions.

### Adopting technology for higher lab productivity

NCFS piloted the use of Robotic Process Automation (RPA) in sampling, testing, and procurement, to reduce the time spent on manual processes and minimise room for human error. This allowed scientists to focus on tackling new and emerging food safety challenges.



1,100

Projected manhour savings per year with RPA

## Promoting Joint Responsibility in Food Safety

Food safety is a joint responsibility. While SFA ensures that regulatory measures are in place and properly enforced, the food industry and consumers must also do their part. For consumers, it is about equipping themselves with knowledge of food safety risks and adopting good food safety practices. SFA thus works with the industry and public to inform consumers on such risks and best practices.

## Risk at a Glance

↑ Risk at a Glance articles, which detail scientific findings and food safety tips.



← From left: An animation video for schoolchildren and the community to learn about food safety tips in a fun and engaging manner; Collaborations with content producer Just Keep Thinking, on videos addressing common food safety myths. From articles to videos, SFA actively publishes educational materials to educate consumers on food safety risks.



## Developing guidelines for food group-buys

To educate organisers of group buys and their customers on the food safety risks associated with such activities, SFA developed **guidelines** on food safety practices to better manage those risks.



### About group-buy activities

Group-buy activities typically involve a middleperson, or a group-buy organiser, coordinating orders and payments between individuals and local suppliers. In group-buy activities involving food, food safety risks can sometimes arise in the sourcing, storage, and distribution of the food.



### Organisers

Avoid buying from unknown sources and maintain records of transactions to facilitate tracing in event of a food safety incident.

Store food products in a safe and proper manner before they are distributed to individual buyers by adhering to good food storage practices (e.g. storing food at the right temperatures).

Ensure food is promptly collected or distributed, especially for perishable foods. Food should also be protected from cross-contamination or temperature abuse at this stage.



### Customers

Be aware of deals that appear too good to be true, and ask the organiser for more details, such as expiry date and source of food product, when in doubt.

Collect food products promptly from the organiser, especially for perishable foods. Check the condition of the products on receipt and seek clarification if they are not received in the appropriate condition. Consume ready-to-eat food as soon as possible, or promptly store them in the proper condition if required (e.g. in a refrigerator).

↑ Guidelines on good food safety practices for both organisers and customers involved in food group-buys.



## FACING THE COVID-19 PANDEMIC HEAD ON

Continual operations and a healthy workforce are key to ensuring a steady supply of food for Singapore. As the COVID-19 pandemic continued, we pulled out all the stops to protect our food workers, facilities, and consumers.

# STANDING UNITED AMIDST CHALLENGES





## CHAPTER 3: FACING THE COVID-19 PANDEMIC HEAD ON

As the COVID-19 pandemic persisted through 2021, SFA continued to take proactive measures to ensure a resilient supply of safe food for Singapore. We collaborated with stakeholders, including the industry and government agencies, to implement measures to keep our food industry workers safe, as well as ensure continued operations and a steady supply of food.

SFA also worked closely with the industry to mitigate any disruption in food supply resulting from the pandemic by strengthening local food production capabilities.

### Ensuring continued operations

To keep workers in the food industry safe and ensure continued operations, SFA worked with food establishments to implement various Safe Management Measures (SMMs). Checks were actively carried out to ensure that SMMs mandated by the Multi-Ministry Taskforce (MTF) on COVID-19 were complied with, and enforcement action taken against errant operators.

### Implementing SMMs at food establishments

SFA carried out over 6,000 monthly manpower deployments to check on the implementation of SMMs at food establishments.

#### 1. Routine Rostered Testing Mandatory Fast and Easy Testing

15 July 2021 to 18 February 2022

Weekly testing of workers at food establishments to detect and ringfence infections early. This allowed food establishments to keep their workers safe and limit disruptions to operations.



48

Warning letters issued to F&B operators for failure to conduct weekly testing for employees

## 2. Vaccination-differentiated Safe Management Measures (VDS)

15 July 2021

Introduction of VDS at F&B establishments to allow fully vaccinated persons to dine in larger group sizes safely. Coffeeshops and hawker centres were allowed to accept smaller dine-in groups without VDS implementation.



20 November 2021

VDS was extended to coffeeshops and canteens. SFA officers were deployed to verify the additional measures at coffeeshops and canteens to ensure VDS and take enforcement against errant patrons and operators.



↑ Checks were conducted to ensure only fully vaccinated patrons dined in at coffeeshops.

7 March 2022

Taking in feedback shared during SFA's engagements with operators, options for VDS implementation at selected defined areas and/or during certain times of the day were introduced to allow larger groups to dine in safely at coffeeshops and canteens.



↑ Implementation of VDS at food establishments.

29 March 2022

Relaxation of VDS measures



237

Coffeeshops and canteens that implemented VDS, to allow larger groups to dine-in safely



### 3. Enhanced SMMs for nightlife establishments

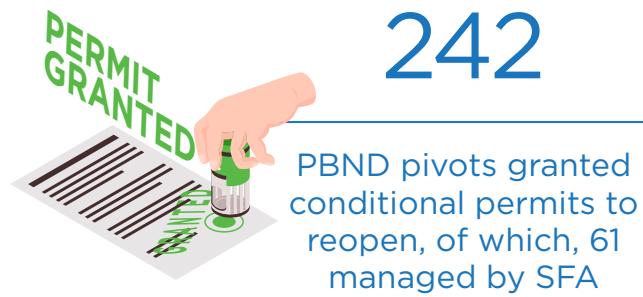
July 2021

A surge of COVID-19 cases reported at KTVs led to the suspension of operations for pubs, bars, nightclubs, and discotheques (PBNDS) that had earlier pivoted to F&B operations.

SFA led the multi-agency response, coordinating stepped-up checks by officers from SFA, Singapore Tourism Board (STB), Urban Redevelopment Authority (URA), Singapore Land Authority (SLA), and ESG, to ensure that the pivoted PBNDS met enhanced SMMs before being allowed to reopen.

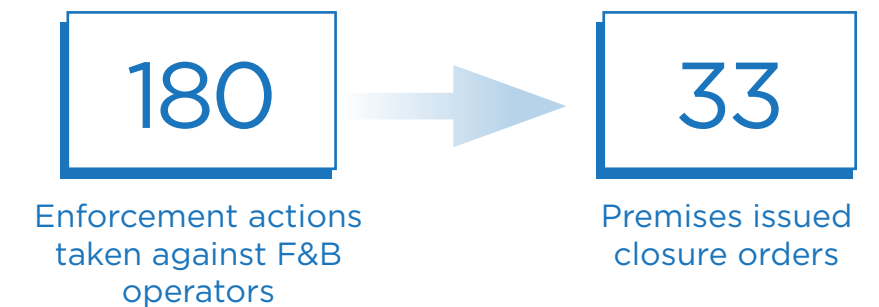
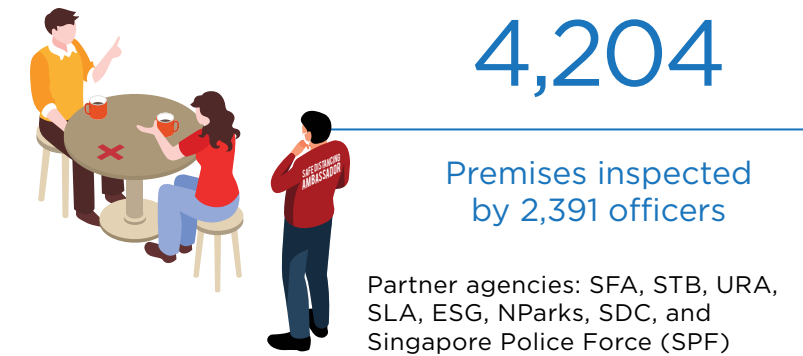


**PBND reopenings**  
as at 31 March 2022



### 4. Enforcement operations during festive periods

SFA coordinated a total of six joint SMMs enforcement operations with other government agencies between April 2021 and March 2022. The operations were aimed at projecting an enhanced enforcement presence during major festive holidays to ensure compliance with SMMs. Enforcement action was taken against errant F&B operators.



## Ensuring a steady supply of safe food

Our ports and wholesale centres are key nodes in Singapore's food supply chain, where continued operations are crucial to maintaining a steady supply of safe food for Singapore. During the COVID-19 pandemic, measures were put in place to protect these facilities and their workers. However, even our best defences were sometimes broken through. SFA responded swiftly to mitigate the impact of the disruptions to our food supply.



## Responding to the JFP COVID-19 cluster: Swift Action and Collaboration

On 16 July 2021, the Jurong Fishery Port (JFP) was closed after multiple COVID-19 infections were detected amongst workers in JFP. With our partner agencies, SFA swiftly stepped in to implement measures to break the chain of transmission within JFP, minimise disruptions to Singapore's seafood supply, and facilitate JFP's safe reopening. We also devised contingency plans to manage future disruptions.

### Responding swiftly and decisively

On the night of the closure, SFA set up the SFA Incident Response Team.

#### Duties:

- Ensure Singapore's seafood supply remained stable
- Review and strengthen SMMs at JFP for a safe reopening

The team also spearheaded the multi-agency response, from diverting the supply of seafood to other distribution centres, to managing the ground situation and ensuring the safe reopening of JFP.

### Some of our partner agencies:

- Enterprise Singapore (ESG)
- Health Promotion Board (HPB)
- Immigration & Checkpoints Authority (ICA)
- Ministry of Health (MOH)
- Maritime & Port Authority of Singapore (MPA)
- Ministry of Sustainability and the Environment (MSE)
- Ministry of Trade and Industry (MTI)
- National Environment Agency (NEA)



### Minimising the impact on Singapore's seafood supply

The closure of JFP meant that seafood imports had to be redirected to other distribution centres or alternative premises of major retailers. We actively worked with industry stakeholders to mitigate supply disruption by:

- monitoring seafood supply data closely;
- facilitating the diversion of seafood supply and;
- activating alternative supply plans, such as by activating Senoko Fishery Port and having major wholesalers increase their imports.

As a result, disruption to seafood supply during the two-week closure was minimal and short-lived. No major surge in pricing or panic buying by the public was observed. Retailers were able to ensure adequate stocks in their stores to meet demand, and food service operators were able to manage by switching to other sources and frozen alternatives.



↑ Two rounds of deep cleaning were conducted at JFP during its closure to ensure that it was thoroughly disinfected.



## Preparing for a safe reopening

To ensure that JFP could be reopened safely, SMMs were reviewed and tightened. These included:

- Dividing the marketplace into sectors and implementing movement controls of workers
- Placing all workers on a rostered routine testing regime
- Requiring trade visitors to have a valid negative COVID-19 test result within a three-day window before gaining entry into JFP
- Implementing crowd management measures to limit the number of traders allowed in the marketplace at any one time
- Developing and implementing a fomite surveillance programme to collect samples regularly to provide early alerts for SFA
- Implementing a regular cleaning and disinfection regime

A day before the reopening of JFP, a briefing was conducted for tenants on the enhanced measures. JFP was reopened on 1 August 2021, with the JFP cluster declared closed on 7 September 2021.



↑ Different coloured wrist bands were issued to tenants, workers, and traders at JFP as part of enhanced SMMs.



↑ To reduce the risk of virus transmission between workers and boatmen, dedicated workers were assigned to operate forklifts and cranes at the wharf, to move seafood from vessels to gates.



↑ Resumption of activities at JFP, with tightened SMMs in place to ensure a safe reopening.



## Contingency planning to manage future disruptions

To minimise any future disruptions to our food supply chains arising from the closure of key facilities, contingency plans were put in place. This included identifying ready alternative distribution sites.

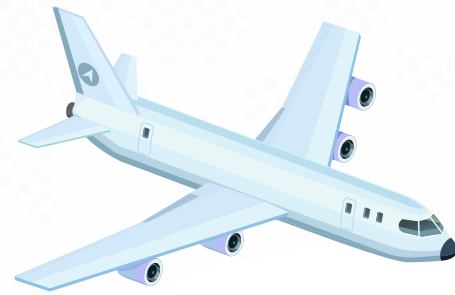
On 12 September 2021, SFA conducted an exercise with JFP tenants and the Singapore Fish Merchant's General Association (SFMGA). Held at an alternative distribution site in Pasir Panjang, the exercise was aimed at familiarising participants with contingency plans in the event of disruptions to JFP operations.



↑ A walkthrough of the premises was conducted for participants to familiarise themselves with the site and work processes. Issues of concern were also identified, and participants discussed ways to refine work processes to ensure smooth operations.



↑ Through a table-top exercise, participants fine-tuned their contingency plans and refined business continuity plans to minimise disruptions to their operations.



# COLLABORATING INTERNATIONALLY TOWARDS A COMMON GOAL



## STRENGTHENING GLOBAL PARTNERSHIPS

We network with counterparts far and wide to build firm global partnerships and collaborate towards common goals in food safety and security. We build on each other's strengths, and play a key role in regional developments.





# CHAPTER 4: STRENGTHENING GLOBAL PARTNERSHIPS

Singapore maintains close ties with partners in the international community in the spirit of exchange and collaboration. We build on each other’s strengths in food, agriculture, fishery, and research, so that Singapore can continue to enjoy a steady supply of safe food.

We work together with our partners in order to safeguard and advance Singapore’s interests, collaborate on capacity building, and contribute to regional developments in food security and food safety.

## Engaging international counterparts

SFA regularly engages our foreign counterparts through regional and international meetings. These exchanges enable us to gain insights and updates on developments that can better inform policymaking and planning.

## Key meetings

**April 2021**  
Food for Earth Day



**May 2021**  
1<sup>st</sup> Official Meeting of the One Health Global Leaders Group (GLG) on Antimicrobial Resistance (AMR)



**May 2021**  
88<sup>th</sup> World Organisation for Animal Health (OIE) General Session

**June 2021**  
42<sup>nd</sup> Session of the Food and Agriculture Organization (FAO) Conference

**July 2021**  
United Nations Food Systems Pre-Summit Conference

**August 2021**  
Special Senior Officials Meeting (SOM) for the 42<sup>nd</sup> Association of Southeast Asian Nations (ASEAN) Ministers for Agriculture and Forestry (AMAF) and related meetings

**August 2021**  
6<sup>th</sup> Asia-Pacific Economic Cooperation (APEC) Food Security Ministerial Meeting



**August 2021**  
2<sup>nd</sup> Official Meeting of the One Health GLG on AMR

**September 2021**

7<sup>th</sup> ASEAN-China Ministerial Meeting on Sanitary and Phytosanitary Cooperation



**September 2021**

7<sup>th</sup> ASEAN-China Ministerial Meeting on Sanitary and Phytosanitary Cooperation

G20 Agriculture Ministerial Meeting



**September 2021**

United Nations Food System Summit



**October 2021**

Preparatory-SOM 43rd AMAF, 21<sup>st</sup> SOM-AMAF Plus Three, 43<sup>rd</sup> AMAF, 21<sup>st</sup> AMAF Plus Three



**November 2021**

3<sup>rd</sup> Meeting of the One Health GLG on AMR

**November 2021**

44<sup>th</sup> Codex Alimentarius Commission

**February 2022**

Meeting of the Food for Future Summit



**March 2022**

36<sup>th</sup> Session of the FAO Regional Conference for Asia and the Pacific



**March 2022**

4<sup>th</sup> One Health GLG on AMR



## Strengthening international food safety standards

As Singapore sets its sights on becoming an agri-food hub and a global “living laboratory” for food technologies, food safety is a key priority.

To position the country as a key player in the setting of international food safety standards, SFA actively contributes to regional and international efforts to promote innovations in food technology, as well as developing new standards and practices to enhance food safety.

## Advancing the regulation of novel food

SFA organised the second edition of the Roundtable on Novel Food Regulations on 15 November 2021 to provide a platform for regulators, local and international industry players, and members of international organisations to share best practices and experiences on technical issues surrounding the regulation of novel food. Attended by over 170 participants, the event was held as part of the inaugural Singapore International Agri-Food Week.



↑ Dr Tan Lee Kim, Director-General, Food Administration & Deputy CEO of SFA, giving the opening address.



↑ Dr Tan (left) moderating a panel discussion at the Roundtable on Novel Food Regulations.

## Contributing to international food safety standards

SFA convened the inaugural meeting of the National Codex Committee (NCC) on 4 May 2021. The committee plays an important role in the formulation of Singapore's positions at the international food standards setting body, Codex. It comprises members from government agencies, industry representatives, and academia. Since the formation of NCC, it has provided advice to SFA on various matters at Codex.

SFA's NCFS also shared its research efforts in micro and nano-plastics at international meetings and workshops. It presented the scientific developments in the detection and characterisation of these materials in workshop discussions organised by APEC in December 2021, as well as at an FAO Expert Meeting on microplastics in foods in January 2022.



### About the Codex Alimentarius Commission

The Codex Alimentarius Commission, or Codex, is an international food standard setting body of which Singapore is a member. Established under FAO and WHO, it aims to protect consumers' health and ensure fair practices in the food trade.

## Establishing Singapore as a port hub for safe food

As a port hub, we strive to facilitate the opening of new trade flows for food while ensuring the safety of food cargo that pass through or are exported from Singapore.



### Facilitating the re-export of imported food products

To open new trade flows for Singapore, SFA introduced a general re-export health certificate to facilitate the re-export of imported food products that do not undergo any processing, repacking, or re-labelling in Singapore. The certificate helps exporters meet requirements set by importing countries to ensure the safety and traceability of food consignments.



## Affirming international partnerships

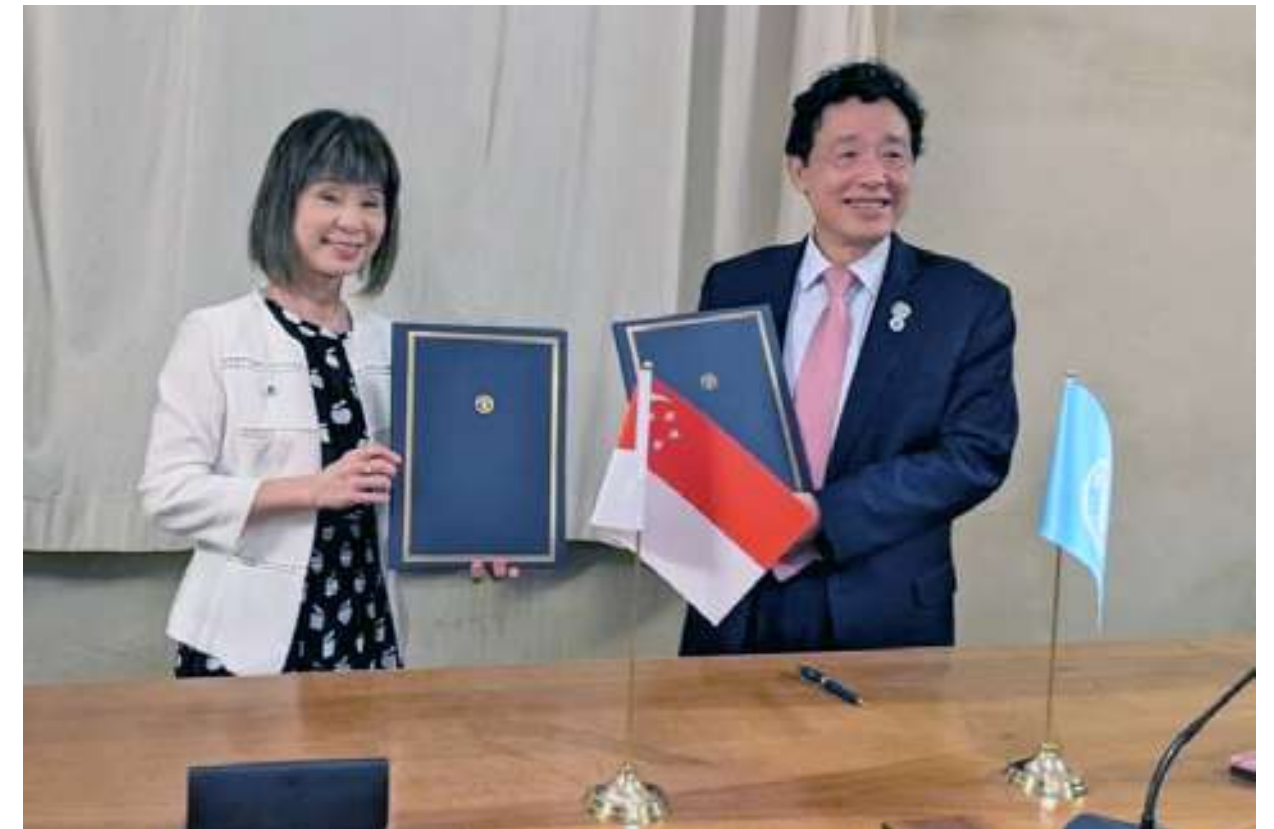
SFA works actively to strengthen partnerships with international counterparts, and reaffirm our commitment to advance food safety and security together.



## Extending the Singapore-FAO MOU

Singapore and the FAO signed a second extension of the MOU on food security and safety on 18 September 2021. This three-year extension will see SFA and FAO continue to work together in the following areas:

- Strengthening food safety and risk assessment to safeguard the health of consumers
- Addressing antimicrobial resistance
- Exploring urban food solutions.



↑ Senior Minister of State for Sustainability and the Environment Dr Amy Khor (left) with Dr Qu Dongyu, Director-General of the FAO, at the signing of the Singapore-FAO MOU.

## Cooperation with ASEAN counterparts

To enhance food safety and security in Southeast Asia, SFA collaborates with our regional counterparts to address issues that require coordinated, regional action.

### Supporting antimicrobial resistance efforts

Singapore works continuously alongside partner agencies, regional partners, and the industry in the global fight against AMR. An ongoing project is the ASEAN Cooperation Project, which is supported by Japan-ASEAN Integration Fund and FAO. As part of the project, we worked with ASEAN counterparts to develop the following documents:

- 1 Regional guidelines on performing risk analysis for antimicrobial resistance arising from the use of antimicrobial agents in aquaculture
- 2 Regional guidelines for prudent use of antimicrobials in aquaculture
- 3 Five-year Regional Plan of Action on AMR in Aquaculture
- 4 ASEAN guideline on techniques for veterinary drugs residue detection in aquaculture products

### 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.



← The documents prepared as part of the ASEAN Cooperation Project were endorsed at the 43rd Meeting of the ASEAN Ministers on Agriculture and Forestry (AMAF) on 27 October 2021.



## Hosting distinguished visitors

SFA hosts foreign dignitaries and officials regularly, to share on our food security strategies, regulatory controls, and functions.



## List of visitors hosted in FY 2021

### 22 April 2021

H.E. Kateryna Zelenko, Ambassador of Ukraine in Singapore

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### 29 April 2021

H.E. Ms. Rukhsana Afzaal, High Commissioner of Pakistan in Singapore

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### 1 July 2021

H.E. Mehmet Burcin Gonenli, Ambassador of Republic of Turkey in Singapore

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### 19 July 2021

H.E. Suriya Chindawongse, Royal Thailand Ambassador in Singapore

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### 6 October 2021

H.E. Magdalena Bogdziewicz, Ambassador of Poland in Singapore

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### 6 January 2022

→ H.E. Judit Pach, Ambassador of Hungary to Singapore, with SFA CEO Lim Kok Thai.



### 19 January 2022

H.E. Mario Andrea Vattani, Ambassador of Italy in Singapore

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### 3 February 2022

H.E. Iwona Piórko, Ambassador of European Union (EU) in Singapore  
H.E. Mario Andrea Vattani, Ambassador of Italy in Singapore

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### 28 February 2022

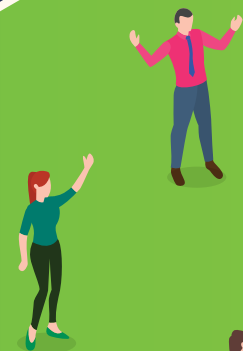
H.E. Georgios Dogoritis, Ambassador of Greece in Singapore



## TRANSFORMING FOR THE FUTURE

A highly motivated and competent workforce is key to SFA achieving our mission. We build our people up and plan ahead to ensure we can serve the needs of the nation effectively.

# LEARNING AND GROWING AS ONE





## CHAPTER 5: TRANSFORMING FOR THE FUTURE

Ensuring and securing a supply of safe food for Singapore is far from an easy task. To enable us to achieve our mission, SFA continuously strives to optimise organisational efficiency and effectiveness. Recognising that our people are the cornerstone of our achievements and success, SFA is committed to empowering and developing our talents so that they can better serve the needs of Singapore and Singaporeans.

### Building capabilities for today and tomorrow

SFA regularly reviews our operational and workforce processes, so that we are ever ready to take on the challenges of our evolving world. A key area of our focus is risk management, where we take active steps to build a strong risk-aware culture. This enables us to be well-primed to mitigate the impact of disruptions that come our way.



### Planning for the future

Over a 12-month process, SFA conducted an exercise to review its workforce and plan strategically for the future. The exercise identified mega-trends and key insights into Singapore's future food ecosystem, and outlined key strategies in talent management, digitalisation, and automation, strengthening industry capabilities, and attracting relevant scientific expertise, which could be implemented over the next few years as part of SFA's workforce transformation.

### Building a strong risk-aware culture

SFA developed plans and control measures to mitigate risks following a review and development of SFA's first Enterprise Risk Management Framework in December 2021. Done through a series of workshops, focus groups and interviews with internal stakeholders, the framework will also see staff trained in risk concepts and management.

## Enhancing the customer experience

As a customer-oriented organisation, SFA is constantly improving our service delivery to meet customer expectations. Staying true to this commitment, we pushed out various initiatives to deliver seamless and convenient services to all our customers.



## Meeting customers' expectations

SFA conducted the biennial Customer Satisfaction Survey between August and October 2021 to measure the level of satisfaction among food businesses and the public, towards SFA's service delivery and fulfilment of its mission and mandate.

### Customer satisfaction

Positive rating of  
**86.8%**  
among the food business industry



### Perception towards SFA's fulfilment of its mission and mandate

Positive rating of  
**87.3%**  
among the public

## Improving service delivery

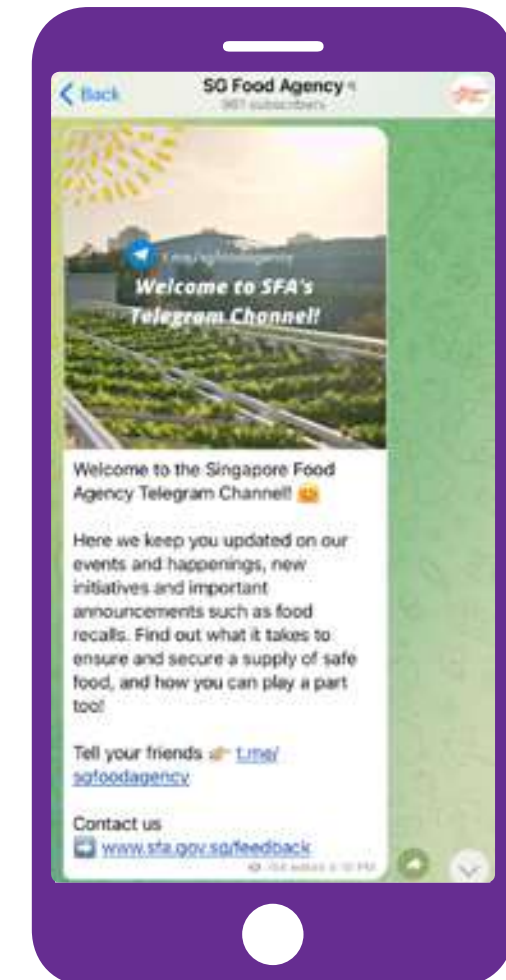
In January 2022, SFA launched the pilot trial of an interactive online LiveChat channel to provide real-time responses to general enquiries and feedback. This is part of ongoing efforts in the nationwide channel digitalisation and information transformation strategy.



↑ The LiveChat service is the latest digital channel in addition to the online feedback form and myENV app for users to submit their feedback and enquiries to SFA.

## Exploring new communications channels

SFA launched our Telegram channel in June 2021 to update the public on events and happenings, new initiatives, and important announcements such as food recalls. The channel amassed close to 1,000 subscribers as at 31 March 2022.








## Inculcating a culture of innovation and excellence

At SFA, we believe in fostering a culture of innovation and excellence. We encourage the active sharing and exchange of scientific developments, ground-up innovation, and develop our officers so that they can work towards achieving our mission. During the year, we received recognition from various ministries for our efforts in innovation and service delivery. We also organised events to deepen our officers' knowledge and expertise in food safety and security.


### Recognising our officers


 **MSE Excellence Day Awards 2021**  
This annual event celebrates excellence within the MSE family, where staff are recognised for service excellence, outstanding contributions, and the implementation of innovative and effective practices/programmes.

 **SFA's Wins**  
19 individual/team awards across 10 award categories

 **MSE Service Excellence Award**  
3 individuals, 1 team

 **MSE Commendation Award**  
2 teams


 **MSE Exemplary Leader Award**  
4 individuals


 **MSE SkillsFuture Award**  
2 individuals

 **MSE One Public Service Award**  
2 teams

 **MSE Regulatory Excellence Award**  
1 team


 **MSE Citizen Engagement Award**  
1 team

 **MSE Agility Award**  
2 teams

 **MSE Innovator Award 2021: Sharpening Food Safety Monitoring Practices using Science-backed, Risk-based Technologies**

To better monitor food safety and scale up surveillance globally, SFA pioneered a risk and data science framework to aid in detecting hygiene violations and reducing food poisoning outbreaks. This led to a proactive market monitoring programme to ensure food safety.



 **MSE Dare-To-Do Award 2021: Pioneering an Aquaculture Nutrition Facility at the MAC**

To deepen Singapore's expertise in aquaculture nutrition and support the sustainable increase in aquaculture production in Singapore, SFA worked with R&D partners to set up the region's first nutrition facility in feed development. This will enable the production of customised fish feed optimised for locally-farmed species.



### Public Sector Transformation (PST) Awards 2021

Established with the aim to improve the standards of service delivery in the Singapore Public Service, the PST Awards recognises public agencies and officers for their dedication to service excellence and organisational practices.

### SFA's Wins

4 PST Awards

### Regulatory Excellence Award

1 team

### Exemplary SkillsFuture @Public Service Award

1 individual

### One Public Service Award

1 individual



[Click to view the CWG report](#)

### Citizens' Workgroup on Increasing Demand for Local Produce

The Citizens' Workgroup on Increasing Demand for Local Produce won the PST Citizen Engagement Excellence Award for scoring many 'firsts' - it was SFA's first such public engagement as well as the first hybrid citizen engagement conducted physically and virtually in view of COVID-19 restrictions.



The Workgroup was established in July 2020 amidst the COVID-19 pandemic to co-create with citizens ways to increase demand for local produce in view of Singapore's vulnerability to food disruptions in the global food chain. Consumer demand for local produce supports local farms and businesses as Singapore works towards our 30 by 30 goal.

The Workgroup brought together 50 citizen participants from diverse backgrounds and 12 industry stakeholders. Despite the challenges brought about by COVID-19, the team adapted and engaged citizens in innovative ways using new virtual tools and platforms. The diverse views and ideas culminated in six recommendations, published in a Citizens' Report, written, and designed by the participants.





### SFA Excellence Awards

SFA launched the inaugural SFA Science Excellence Awards to recognise staff for their scientific and R&D achievements in agri-tech, aqua-tech and food science.



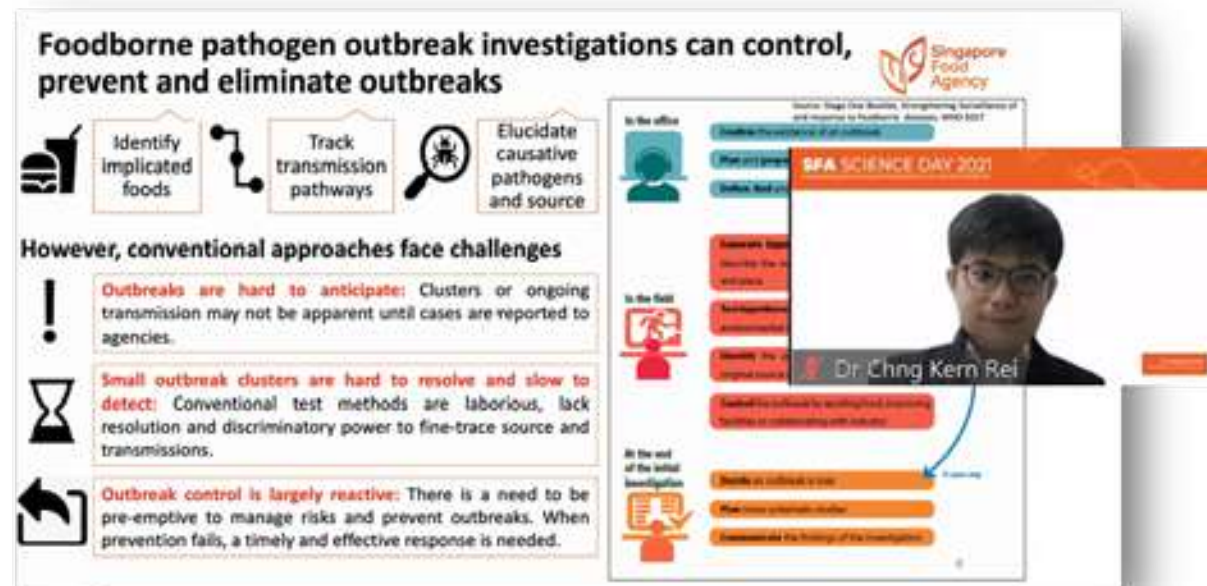
“  
Science and Technology (S&T) is critical to the MSE Family’s work. Besides informing our policy decisions, S&T enables us to develop innovative solutions to address complex and interconnected challenges we face in sustainable development and climate change.

– MSE Permanent Secretary  
Mr Albert Chua in his keynote address



## Encouraging knowledge sharing

SFA held the third SFA Science Day on 1 November 2021, to encourage the sharing and exchange of scientific and innovative developments among the MSE family. Themed “Harnessing science and innovation in an era of COVID-19”, topics covered included innovative solutions to tackle the various challenges brought about by the pandemic, and the use of automated solutions to increase productivity in local food production. The event brought together 370 colleagues from SFA, NEA, Public Utilities Board (PUB), and MSE.



↑ Dr Chng Kern Rei of the National Centre for Food Science sharing how SFA harnessed science to advance its foodborne outbreak preparedness.

## Catalysing new ideas

SFA launched the enhanced SFA Seed Fund to encourage ground-up innovation, solutioning, and cross-divisional collaboration within SFA. Three projects to transform SFA’s work and reap resource savings were awarded funding in the first year of the fund’s launch.

One of the projects involves the use of artificial intelligence to rapidly identify unexpected emerging foodborne chemical contaminants and addresses food safety risks at the earliest opportunity before they pose threats to public health. This is expected to improve productivity in food sample analysis by up to 400 per cent.

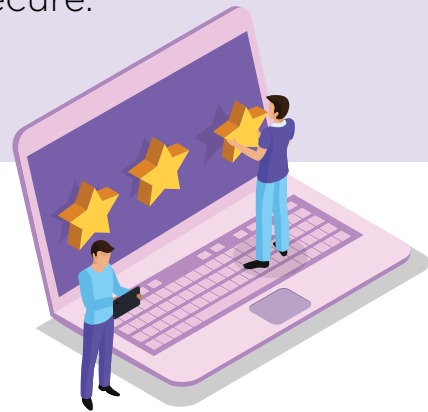


↑ A virtual sharing on SFA’s safety assessment of novel food.



## Maintaining a highly capable team

Our officers are key in carrying out SFA's mission. It is therefore crucial that we get the right talents to keep our food supply safe and secure.



# 89/100

Despite being a young agency, SFA was voted one of Singapore's 100 Leading Graduate Employers in a national careers survey completed in 2021. The survey was carried out across 13,989 local students and graduates in Singapore.

## Attracting key talents



↑ The Singapore Food Story, SFA's corporate video.

SFA embarked on a recruitment drive to reach out to potential employees to join us to collectively shape Singapore's Food Future based on the SFA employee value proposition of Passion, Growth & Opportunities, Culture, and Innovation.

## SFA's employee value proposition

- 1. Passion:** We bring together people who are passionate about ensuring and securing a supply of safe food for Singapore.
- 2. Growth & Opportunities:** We develop and grow each employee's skills and potential, providing them with opportunities to take on different job roles and experiences throughout their career.
- 3. Culture:** We foster a culture that enables our employees to be anticipative, agile, resilient, and collaborative.
- 4. Innovation:** We leverage science and technology to deliver our mission. We are innovative in solving problems and coming up with new solutions to improve and enhance what we do.

## Caring for our people and the community

SFA cares for our people and the community around us. We organise events throughout the year to strengthen camaraderie and rapport amongst our officers, promote healthy living and mental well-being, and foster a culture of giving back to society.

### Staff welfare and recreation activities

#### Serving the community

- MSE Family Race, a fundraiser event for the President's Challenge



↑ SFA emerged the Overall Winning Agency!

- Read for Books Charity Drive, to raise awareness and share the gift of reading with the less privileged



↑ Seah Peik Ching of the Regulatory Standards and Veterinary Office reading a book with her children as part of the Read for Books Charity Drive.

- Ride for Rainbows, a charity cycling event to support children with major chronic illnesses and their families



Club Rainbow (Singapore) - The Official Site

↑ Zainal Ramli from the Joint Operations Division, one of the participants of Ride for Rainbows.

#### Caring for one another

- Virtual SFA Appreciation Event to recognise staff's hard work over the past year
- Curated Local Food Produce Pack distribution
- Mental Wellness Talks to bring positivity to daily life

#### Keeping fit together

- Virtual workouts over National Day



↑ Virtual Pilates.





### From the Public Service Division (PSD)

**Citizen Engagement Excellence Award 2021** for “Citizens’ Workgroup on Increasing Demand for Local Produce”

**Regulatory Excellence Award 2021** for “Ensuring Safe Food Supply: Facilitating Exports, Farm Establishment, and Novel Foods”

**Exemplary SkillsFuture Award 2021** for Yeung Chun Yin Johnny

**One Public Service Award 2021** for “Securing Essential Supplies”

### From the Ministry of Trade and Industry (MTI)

**Public Sector Pro-Enterprise Disrupter Award 2021** for “Pioneering a Facilitated Regulatory Approach for Novel Food”

**Public Sector Pro-Enterprise Initiative Bronze Award 2021** for “Developing an Industry Guide for Setting Up Land-based Farms in Singapore”

### From the Ministry of National Development (MND)

**Municipal Services Award (Apex) 2021** – Team award for “Waterloo Mall Street Enhancement Project”

**Municipal Services Award (Certificate of Appreciation) 2021** – Team award for “Collaboration with SFA, AMK HDB & TC to curb Safe Management Measures and Public Order at coffee shops”

### From the Ministry of Sustainability and the Environment (MSE)

**Agility Award 2022 – Team award** for “Targeted Ops to Ensure Food Supply Resilience and Safe Re-opening of JFP” and “Accreditation of Food: Video Inspection” and “Planning for Special Operations to Conduct SMM at Food Establishments”

**Citizen Engagement Award 2022** for “Lim Chu Kang Master Plan Stakeholder Engagement” and “Engagement of Sea-based Farmers”

**Commendation Award 2022** for “Assessment and Mitigation of GBS Risks to Food Safety in Singapore”

**Dare to Do Award 2022** for “Outsourcing of Microbiological Testing for Regulatory Samples” and Mei Ailian

**Exemplary Leader Award 2022** for Dr Abdul Jalil Abdul Kader and Lee Joo Kiong

**Innovator Award 2022** for “Development of Hatchery Technology for Red Snapper” and “Enhancing the Productivity of Food Safety Monitoring through RPA”

**One Public Service Award 2022** for “Strengthening Egg Supply Resilience”

**Regulatory Excellence Award 2022** for “Ensuring Food Safety During Pandemic”

**Service Excellence Award 2022** (Individual) for Liao Wei Min and Benny Quek

**Service Excellence Award 2022** (Team) for “Improving the Management of Farm Visits Requests”

**SkillsFuture Award 2022** for Chen Yuan and Tan Wei Jie

### From the Community Chest

**SHARE Platinum Award 2021** for achieving 91% SHARE participation rate

### 2021 National Day Awards

**Public Administration Medal (Bronze)** for Dr Jiang Junhui and Tan Lu Hsia

**Commendation Medal** for Eng Chi Huei, Ong Chun Chuan Marcus and Ong YiHang

**Efficiency Medal** for Goh Sin Ee Serene, Farziana binte Rosli, Teo Wenxuan Michelle, Oh Jia Quan and Abdul Rashid Bin Ideris

**Long Service Medal** for Kho Soo Pei, Phua Teck Heng, Chua Suat Lay Shirley, Poh Bee Ling, Kong Suet Mui Serena, Cheong Yock Hwa, Yeong Mew Li, Lee Woei Sing, Lai Lye Mun and Lam Chiang Seng

### Received by the National Centre for Food Science (NCFS)

World Health Organisation (WHO) Collaborating Centre for Food Contamination Monitoring (2020-2024) designation, received by the Food Safety Monitoring and Forensics Department

ISO/IEC 17025 SAC-SINGLAS Accreditation (since 2000), with 1 new test accredited in FY2021

World Organisation for Animal Health (OIE) 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)

# Awards & Accolades



# Corporate Governance

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

## Internal control framework

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

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

- Independent internal audit function and external audit functions.

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

## Internal and external audit functions

The Internal Audit Unit operates independently from other Groups in SFA, and reports to the SFA Board's Audit and Risk Committee. The Internal Audit Unit 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 of Sustainability & the Environment in consultation with the Auditor-General. The external auditor engaged for the financial year, which ended on 31 March 2022, 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.



