



Handled with Care

— Annual Report 2016/17 —



▶ VISION

Safe food, healthy animals and plants for Singapore; trusted and respected globally.

▶ MISSION

- Ensure a resilient supply of safe food;
- Ensure the health & safeguard the welfare of animals;
- Safeguard the health of plants;
- Facilitate agri-trade; and
- Nurture and inspire staff to be the best we can be!

▶ VALUES (ExCITe)

Excellence:

- We strive to be the best in all that we do.
- We seek lifelong learning and continuous innovation.

Care:

- We value and nurture our staff.
- We care for the community and the environment.

Integrity:

- We serve with professionalism.
- We treat our customers fairly and honestly.

Teamwork:

- We trust and respect each other.
- We work as a team and partner our stakeholders to achieve our goals.

▶ AWARDS & ACCOLADES

SINGAPORE QUALITY CLASS (STAR)

re-certified in December 2016

PEOPLE DEVELOPER

re-certified in December 2016

INNOVATION CLASS

re-certified in December 2016

ISO/IEC 17025 SAC-SINGLAS ACCREDITATION

received by:

- Veterinary Public Health Laboratory since 2000, with 11 new tests accredited in FY 2016
- Animal Health Laboratory since January 2005, with 3 new tests accredited in FY 2016
- Plant Health Laboratory since June 2005, with 3 new tests accredited in FY 2016

WORLD ORGANISATION FOR ANIMAL HEALTH (OIE) COLLABORATING CENTRE FOR FOOD SAFETY

designation received by Veterinary Public Health Centre since May 2014

ASEAN REFERENCE LABORATORY FOR PESTICIDE

designation received by Veterinary Public Health Laboratory since 2004

ASEAN REFERENCE LABORATORY FOR ENVIRONMENTAL CONTAMINANTS

designation received by Veterinary Public Health Laboratory since 2014

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MINISTRY OF NATIONAL DEVELOPMENT MINISTER'S (TEAM) AWARD

received for 'Development of Multi-Pronged Approach to Mitigate and Respond to the Impacts of Plankton Blooms'

PS21 STAR SERVICE AWARD

PS21 DISTINGUISHED STAR SERVICE TEAM AWARD

PS21 INNOVATION CHAMPION AWARD (MERIT)

LEADING HR PRACTICE IN EMPLOYEE RELATIONS & WORKPLACE HARMONY AWARD

received from Singapore Human Resource Institute

EXCELLENCE IN MATURE WORKFORCE GOLD AWARD

EXCELLENCE IN WORK-LIFE BALANCE GOLD AWARD
received from Human Excellence Awards

ONG TENG CHEONG LABOUR LEADERSHIP INSTITUTE WORKPLACE PARTNERSHIP AWARD (GOLD)

received jointly with AUSBE-AVA since 2015

FOOD SUPPLY RESILIENCE **16**



30 FOOD SAFETY



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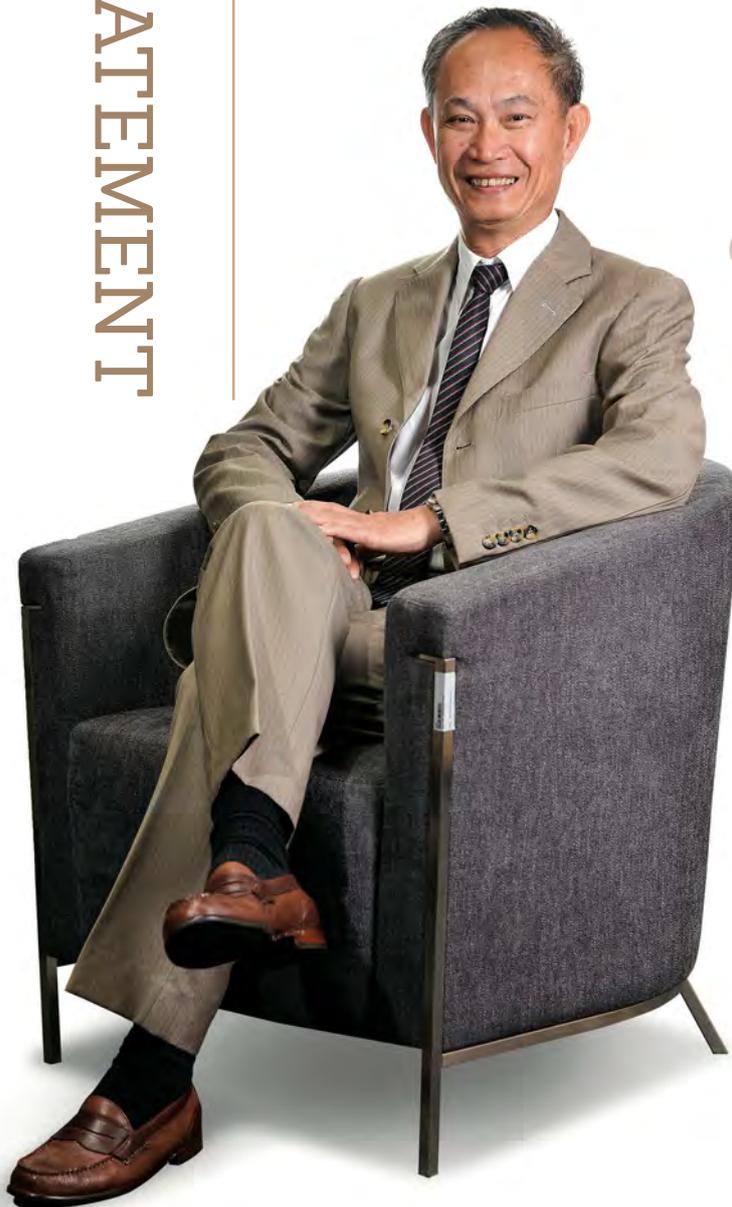


CHAIRMAN'S STATEMENT

It has been an honour to join the AVA Board two years ago, first as Deputy Chairman, and then as Chairman. On 1 Apr 2016, I took over AVA's Chairmanship from Mr Koh Soo Keong, and I am excited to take on the challenge of exploring the opportunities ahead, building on the good work and strong foundations that have been laid by our pioneers.

In the past year, AVA has been operating in a very dynamic and complex environment. At the global level, we witnessed unexpected geopolitical developments and increased dialogue on protectionist and anti-trade sentiments, global food scandals on a large-scale, and continuing cases of animal disease outbreaks such as avian influenza. At the local level, we are faced with increased public expectation as well as polarisation of public views on various social issues.

Despite all these challenges, AVA has performed well to safeguard the well-being of Singapore through ensuring the resilient supply of safe food, safeguarding animal and plant health as well as enhancing animal welfare and management. I am pleased to present the highlights of our work and achievements in FY 2016.



“ AVA has performed well to safeguard the well-being of Singapore through ensuring the resilient supply of safe food, safeguarding animal and plant health as well as enhancing animal welfare and management. ”



FOOD SECURITY

On the food security front, Singapore maintained its strong global position in terms of food security, ranking 3rd globally and 1st in the Asia Pacific region on the Global Food Security Index, ranked by the Economist Intelligence Unit. This is no mean feat as Singapore imports most of our food.

Building up local production

With Singapore currently importing more than 90% of our food, diversification remains an important part of our strategy in ensuring a resilient supply of safe food. However, to buffer against unexpected food supply disruption, we see the need to significantly enhance our local production capacity. On 7 March 2017, Senior Minister of State for National Development and Trade and Industry, Dr Koh Poh Koon announced our Farm Transformation Map (FTM) at Budget 2017. The FTM will guide the transformation of our local agriculture sector into one that is hi-tech, innovative, highly intensive, productive, and resource-efficient. We envision farms of the future to be able to contribute more significantly to Singapore's food security.

To enable our local farmers to play an active role in transforming the agricultural sector, the Industry Consultation Panel (ICP), comprising progressive farmers, researchers, academics and policy-makers, was set-up. This diverse group of stakeholders is working towards innovating and co-creating solutions to transform our agricultural sector through technology.

AVA also plays an active role in assisting our farmers during events that threaten our food production. In January 2017, an oil spill from a vessel collision impacted some of our coastal farms. AVA provided immediate assistance through deploying oil absorbent pads and canvases to protect our farms, and also helped affected farmers with their compensation claims against the ship's insurer. AVA continues to put in place measures to help our farmers manage longer-term environmental risks, such as installing real-time online water quality monitoring systems, customising farm contingency plans, and co-funding the development and adoption of new farming technologies like closed containment aquaculture systems.

Food safety

Food safety is an integral part of AVA's work. For a more coordinated approach towards food safety, AVA works closely with the Ministry of Health (MOH) and the National Environmental Agency (NEA) under an integrated One Health Framework. Together, the One Health agencies developed a coordinated emergency preparedness response plan for food-borne outbreaks at the national level to ensure food safety in both upstream and downstream segments of the food value chain.

As an OIE (World Organisation for Animal Health) Collaborating Centre for Food Safety, we continue to strengthen our foundation as a centre of excellence for food safety that is recognised, respected, and trusted globally.

We work with international partners such as the World Health Organisation-International Food Safety Authorities Network (WHO-INFOSAN), World Bank Global Food Safety Partnership (GFSP), and International Atomic Energy Agency (IAEA) in capacity building in areas of food safety, including risk assessment, and standard setting and harmonisation.

To ensure food safety, a set of robust and sound legislation that is up-to-date is vital. We are currently reviewing the food safety legislation to enable us to streamline and enhance our food control measures, from farm to fork, so as to better protect public health. With the growing trend and interest in novel food such as designer fats and carbohydrates and laboratory grown meat, AVA is developing a new framework for the regulation of novel foods to give greater guidance and clarity to the industry on the application and assessment for such foods. We will continue to develop our laboratory capabilities and harness new technologies to enhance our food safety testing regime, in order to safeguard our consumers in the face of new and emerging foodborne hazards.

Modes of sales of food are also changing, and we are seeing increasing purchases of food through e-commerce platforms. While we consider online sale of food as another mode of sale, it presents different challenges, which would require AVA to address. We are looking at ways to do so, including developing a regulatory framework and increasing public outreach on the risks of the online purchase of food.

ANIMAL AND PLANT HEALTH

As the competent authority for animal health, AVA continues to safeguard Singapore against the introduction of emerging and exotic animal diseases. To refresh and strengthen our emergency planning and preparedness in the face of continuing avian influenza outbreaks in the region, AVA conducted an avian influenza contingency exercise, Exercise Gallus VIII, to test the operational readiness of AVA's response plan in an avian influenza scenario within a poultry farm.

We have continued our efforts to combat anti-microbial resistance (AMR) in Singapore and in the region. AMR has been described as "a global crisis" by the World Health Organisation as there is rising global concern that this can result in a lack of effective anti-microbials to treat life-threatening bacterial diseases. Antibiotics are used in food animals and cultured fish not only for treatment, but also for disease prevention and growth promotion. Singapore, through AVA, is taking the lead in coordinating ASEAN's efforts to combat this threat in the livestock sector. Nationally, we are working with agencies such as MOH and NEA to develop a nationwide strategy for AMR in Singapore.

To strengthen our emergency planning, we have ramped up collaboration with partner agencies and stakeholders to advance and safeguard animal and public health, such as with Australia's Department of Agriculture and Water Resources to exchange information on animal disease response policies and plans. We are continuing to





build on such networks to ramp up our capabilities to respond to animal and plant health emergencies.

On plant health, AVA also continues to provide plant health technical advisories to our farmers to mitigate potential destruction to crop production and yields. These efforts go a long way in protecting our local flora from the threat of pests and diseases, thus ensuring our food security and preserving the diversity of Singapore's natural ecosystem.

ANIMAL MANAGEMENT AND WELFARE

On the animal management front, AVA, in its role as the First Responder for animal-related feedback, received four Municipal Services awards in September 2016 for the progress made in handling such feedback via a whole-of-government (WoG) approach. These awards were for AVA's efforts in animal rescue services, AVA-Municipal Services Office stray dog analytics, management of crows and egrets at Maju Ave, and the production of a Municipal Reference Guide.

To further raise animal welfare standards in Singapore, the Code of Animal Welfare for the Pet Industry was issued in August 2016, which comprises minimum standards for animal housing, management, and care that pet businesses must comply with, as well as best practices on animal housing, management, and care which pet businesses are encouraged to adopt.

Revisions have also been made to the dog licensing regime for improved traceability in the event of a disease outbreak such as rabies. For example, with licensing-at-source, pet importers, dog farms, and pet shops must now ensure all dogs intended for sale are licensed prior to being sold. These enhancements to the pet dog licensing regime could also discourage pet abandonment, and help AVA reunite lost dogs with their owners.

The government is building an animal facility at Sungei Tengah to provide replacement sites for animal shelters and pet farms in Loyang and Seletar, when their leases expire by end 2017. The purpose-built facility, which AVA will manage, can cater to the operational needs of the existing shelters and farms. AVA has continual engagement with the shelters and farms to enable a smooth transition from the current site to the new site.

“ AVA, in its role as the First Responder for animal-related feedback, received four Municipal Services awards in September 2016 for the progress made in handling such feedback via a WoG approach. ”



INTERNATIONAL ENGAGEMENT

In the international arena, Singapore successfully hosted the 38th Meeting of the ASEAN Ministers on Agriculture and Forestry (AMAF) and the 16th Meeting of the AMAF Plus Three (AMAF+3) in October 2016, which provided leadership and established strong regional cooperation in agriculture, food security, fisheries, and forestry matters.

As part of our ongoing collaboration with the Food and Agriculture Organisation of the United Nations (FAO), AVA co-organised the first national capacity development workshop on Port State measures with FAO. AVA also co-organised a side event on Urban Food Security in an Urbanising World: Lessons from Singapore, at the 43rd Session of the Committee on World Food Security held in Rome, Italy in October 2016. CEO, AVA, shared the critical factors that ensure Singapore's food security, especially the need for transformation of the farming sector and adoption of innovative, high-productivity technologies, and urban solutions such as vertical and indoor farming.

On food safety, AVA supported the hosting of the International Food Safety Authorities Network (INFOSAN) meeting. Under the auspices of the ASEAN-China Ministers' Meeting on Quality Supervision (SPS Cooperation), AVA also provided laboratory training in drug residue analyses for participants from ASEAN and China to enhance their food safety capabilities.

As part of agri-trade facilitation, AVA and International Enterprise Singapore have been working to establish Singapore as a food hub for global trade in perishable food. In 2016, the European Union (EU)

approved shipments of meat from New Zealand to markets in the EU through SATS Coolport, Asia's first perishables handling centre at Changi Airport. This will result in cost savings as well as longer shelf-life of the meat products. The establishment of this NZ-SG-EU protocol is a testament of a good track record for Singapore, particularly AVA as the food safety authority and as a competent transit handler for perishables transiting to international markets.

As a responsible global citizen, Singapore remains committed to its CITES obligations and adopts a zero tolerance policy towards illegal wildlife and timber trafficking. AVA, together with our law enforcement agencies and international partners, works closely to combat the illegal wildlife trade. Our commitment was demonstrated in the public destruction of 7.9 tonnes of confiscated ivory in June 2016, and the successful prosecution of a businessman in the High Court of Singapore in March 2017 for the illegal shipment of 3,235 metric tonnes of CITES-listed rosewood (*Dalbergia* spp.) logs from Madagascar.

BUILDING ORGANISATIONAL EXCELLENCE

Over the years, AVA has been laying the foundations of organisational excellence by building up a team of well-trained, passionate, and motivated officers as well as establishing robust systems and processes to deliver our mission each and every time. We are constantly seeking innovation to do our work better. Our continuous journey towards business excellence was recognised when we were awarded the Singapore Quality Class STAR (SQC STAR) certification, the People Developer (PD) certification, and the

Innovation Class (i-Class) certification in 2016.

For its efforts in human resources excellence, AVA received awards for its Excellence in Mature Workforce Programmes and Excellence in Employee Work-Life Balance initiatives.

At the same time, we will continue to focus our efforts on public sector transformation in order to better overcome challenges in the face of ever tighter manpower and resource constraints. Over the past year, we have strengthened our collaboration across government agencies and strived to work as One Public Service. With challenges and issues becoming increasingly complex, we will continue to engage with our stakeholders so as to co-create with them.



THE NEXT LAP: TRANSFORMING OURSELVES TO BE FUTURE READY

In order to enhance the Board's oversight and allow the Management to tap on the expertise and experience of our Board members in key areas, a revamp of the Board Committees was carried out. The restructured Board Committees are the Finance Committee, the Audit and Risk Committee, the Staff Review Committee, and the Communication and Engagement Committee.

In August 2016, the Board and Management came together for the inaugural 'AVA Advance', with the theme "A Future-Ready AVA". The objective of the Advance was to review AVA's challenges and opportunities as well as to explore and define what it means for AVA to be future-ready.

Although we have achieved much so far, more will need to be done. We need to strive harder in the face of a fast evolving environment driven by factors such as urbanisation, advancement in technology,

changing consumers' preference, etc. Therefore, AVA needs to continue to work seamlessly as one AVA and at the WoG level. At the same time, we need to forge closer working relationships with our stakeholders and to leverage on one another's skills and experience so that we will be better positioned to face the challenges of the future.

To be future-ready, we need to be ambitious, set long-term goals and plans, and measure our work robustly to track our progress. In order to stay relevant, we need to be more proactive, innovative and entrepreneurial, and be attuned to emerging drivers and issues.

APPRECIATION TO STAFF AND STAKEHOLDERS

As we gear up for the future, I would like to express my appreciation on behalf of the AVA Board to the staff and the leadership team for their passion and dedication demonstrated in serving Singapore.

I would also like to thank my fellow Board members for their valuable contributions and guidance given to the Management. Thank you and I look forward to greater achievements by AVA in the coming year!

Lim Neo Chian
AVA Chairman

BOARD OF DIRECTORS



1. Mr Lim Neo Chian

Chairman

- Director, Home Nursing Foundation
- Director, Innospring Development Pte Ltd
- Director, Majulah Holdings Pte Ltd
- Director, Supreme Wealth Development Sdn Bhd
- Director, Zhi*Lim Pte Ltd
- Chairman & Director, Ascendas Hospitality Fund Management Pte Ltd (till 15 Jul 2016)
- Deputy Chairman, Gardens by the Bay (till 30 Nov 2016)

2. Ms Tan Poh Hong

- Chief Executive Officer (CEO), Agri-Food & Veterinary Authority of Singapore
- Director, AgriFood Technologies Pte Ltd
- Member, Tropical Marine Science Institute Management Board
- Member, Industries and Services Co-operative Society Pte Ltd Board

3. Mr Peter Chia

- CEO, Temasek Life Sciences Ventures Ltd
- CEO, Temasek Life Sciences Accelerator Pte Ltd
- Chief Operating Officer, Temasek Life Sciences Laboratory Ltd
- Commissioner, PT Montori Nusantara
- Director, Bioforest Pte Ltd
- Director, Tridel Biosciences International Pte Ltd
- Director, JOil (s) Pte Ltd
- Director, JOil Africa Pte Ltd

4. Mrs Lee Ai Ming

- Senior Consultant, Rodyk & Davidson LLP
- Justice of Peace
- Member, Board of Visiting Justices
- Independent Director, Keppel T&T Ltd
- Member, Singapore Copyright Tribunal
- Member, Steering Committee for IP Competency Framework

5. Mr Yeo Guat Kwang

- Assistant Director-General, National Trades Union Congress (NTUC)
- Chairman, Migrant Workers' Centre
- Chairman, Centre for Domestic Employees
- Grassroots Advisor, Aljunied GRC Grassroots Organisations

6. Mr Tan Kok Yam

- Chairman, AgriFood Technologies Pte Ltd

7. Mr Eugene Wong

- Founder and Managing Director, Sirius Venture Consulting Pte Ltd
- Non-executive Chairman, Crimson Logic Pte Ltd
- Non-executive Chairman, Gets Global Pte Ltd
- Non-executive Vice Chairman, Japan Food Holdings Ltd
- Non-executive Director, Sirius SME Growth Partners I Ltd
- Non-executive Director, Sirius Angel Fund Pte Ltd
- Non-executive Director, Sirius Investment Inc
- Non-executive Director, Jason Marine Ltd
- Non-executive Director, International Enterprise (IE) Singapore
- Non-executive Director, Neo Group Ltd
- Non-executive Director, Singapore Kitchen Equipment Ltd
- Non-executive Director, Cargo Community Network Pte Ltd
- Non-executive Director, Singapore Cruise Centre Pte Ltd
- Non-executive Director, SCC Travel Services Pte Ltd
- Council Member, China-Singapore Business Council
- Council Member, Singapore Institute of Directors (till 24 Nov 2016)
- Vice Chairman of the Exco, China and North Asia Business Group

8. Mr Dileep Nair

- Independent Director, Thakral Corporation Ltd
- Independent Director, Keppel Data Centre Reit Management Ltd
- Independent Director, Singapore Reinsurance Corporation Ltd
- Conference Council Member, Singapore Institute of Directors
- Singapore High Commissioner to Ghana (till 31 Dec 2016)

9. RADM (Dr) Tang Kong Choong

- Chief of Medical Corps, Singapore Armed Forces

10. Ms Chua Mui Hoong

- Opinion Editor, The Straits Times, Singapore Press Holdings

11. Professor David Chan

- Professor of Psychology, School of Social Sciences, Singapore Management University (SMU)
- Director, Behavioural Sciences Institute, SMU
- Adjunct Principal Scientist, Agency for Science, Technology and Research (A*STAR)
- Co-Director, Centre for Technology and Social Behavioural Insights, A*STAR-SMU
- Chairman, International Advisory Panel to the National Addictions Management Service and National Council on Problem Gambling
- Member, Social Science Research Council, Singapore
- Member, Diabetes Prevention and Care Taskforce, Singapore
- Member, Board of Directors of Singapore Corporation of Rehabilitative Enterprise
- Member, Governing Board of the Workplace, Safety and Health Institute
- Member, International Advisory Panel, Workforce Singapore and SkillsFuture Singapore
- Member, International Panel of Experts, Urban Redevelopment Authority (URA)
- Member, Research and Development Advisory Panel, URA
- Member, Resource Panel for National Environment Agency
- Member, National Council on Problem Gambling
- Member, National Volunteer & Philanthropy Centre
- Member, International Advisory Board of the Centre for the Advancement of Research Methods and Analysis, United States

12. Mr Lau Teck Sien

- Partner & Chief Investment Officer, HOPU Investment
- Independent Director, BHG Retail Trust Management Pte Ltd
- Director, AgriFood Technologies Pte Ltd

13. Ms Harasha Bafana

- Founder & Director, Adam & Hawa Network
- Board Member, Creative Arts & Culture

LEADERSHIP TEAM



▶ Ms Tan Poh Hong
Chief Executive Officer (CEO)



▶ Dr Yap Him Hoo

- Director-General for Agri-Food & Veterinary Services
- Deputy CEO (Regulatory Programmes & Operations)



▶ Dr Tan Lee Kim, Kim
Deputy CEO
(Corporate & Technology)



▶ Dr Chew Siang Thai
Managing Director,
Special Project



▶ Dr Wong Hon Mun
Group Director,
Agri Establishment Regulation



▶ Dr Chang Siow Foong
Group Director (Designate),
Agri Establishment Regulation
(w.e.f. 28 June 2017)



▶ Ms Jessica Kwok
Group Director,
Animal Management



▶ Dr Choo Li Nah
Group Director,
Communications &
Corporate Relations



▶ Ms Melin Lim
Group Director,
Corporate Resource
Management



▶ Mr Leslie Phua
Group Director,
Food Establishment
Regulation



▶ Mr Melvin Chow
Group Director,
Food Supply Resilience



▶ Mrs Tan-Low Lai Kim
Group Director,
Special Duties
(Fisheries & Port Matters)



▶ Dr Paul Chiew
Group Director,
Laboratories



▶ Mr Foo Siang Ming
Group Director,
Planning & Organisational
Excellence



▶ Dr Astrid Yeo
Group Director,
Regulatory
Administration



▶ Dr Chua Tze Hoong
Group Director,
Quarantine &
Inspection



▶ Dr Leong Hon Keong
Group Director,
Technology &
Industry Development



▶ Mr Tan York Chor
Group Director,
International Relations

ORGANISATIONAL CHART
AND KEY ROLES OF GROUPS



OFFICER (CEO)

REGULATORY PROGRAMMES
& OPERATIONSAGRI ESTABLISHMENT
REGULATION GROUP

- ▶ Regulation of local farms
- ▶ Regulation of animal and plant establishments and feed mills
- ▶ Regulation of veterinary services and standards

ANIMAL MANAGEMENT
GROUP

- ▶ Animal welfare and management
- ▶ First Responder on animal-related issues
- ▶ Licensing of pet animal establishments
- ▶ Licensing of dogs
- ▶ Investigation and enforcement
- ▶ Stakeholder engagement and outreach

FOOD ESTABLISHMENT
REGULATION GROUP

- ▶ Regulation of local food establishments
 - Food factories
 - Slaughterhouses
- ▶ Grading of food factories
- ▶ Technical assistance and services
- ▶ Export facilitation

INTERNATIONAL
RELATIONS

- ▶ Oversight and management of AVA's international and external relations

LABORATORIES GROUP

- ▶ Testing, diagnostic services, and scientific expertise
 - Food safety
 - Animal health
 - Plant health
- ▶ R&D of new test methodology
- ▶ Export certification testing

QUARANTINE &
INSPECTION GROUP

- ▶ Import control
 - Food
 - Animals
 - Plants
- ▶ Quarantine services
- ▶ Export facilitation

REGULATORY
ADMINISTRATION
GROUP

- ▶ Policy, legislation, and programme review
- ▶ Risk assessment
 - Food safety
 - Animal health
 - Plant health
- ▶ Food source accreditation
- ▶ Investigation and prosecution

SPECIAL
PROJECT

- ▶ Establishment of a dedicated institute to drive capability building
 - Food safety
 - Animal health
 - Plant health
 - Animal welfare
 - Animal management
 - Agriculture

China

Singapore

Malaysia

*South
Africa*





Food Supply Resilience

To keep Singapore's food supply stable, it is necessary to diversify our food sources.

At the same time, overseas supply is complemented with local produce. These efforts will ensure that you will always have a wide variety of food at hand.



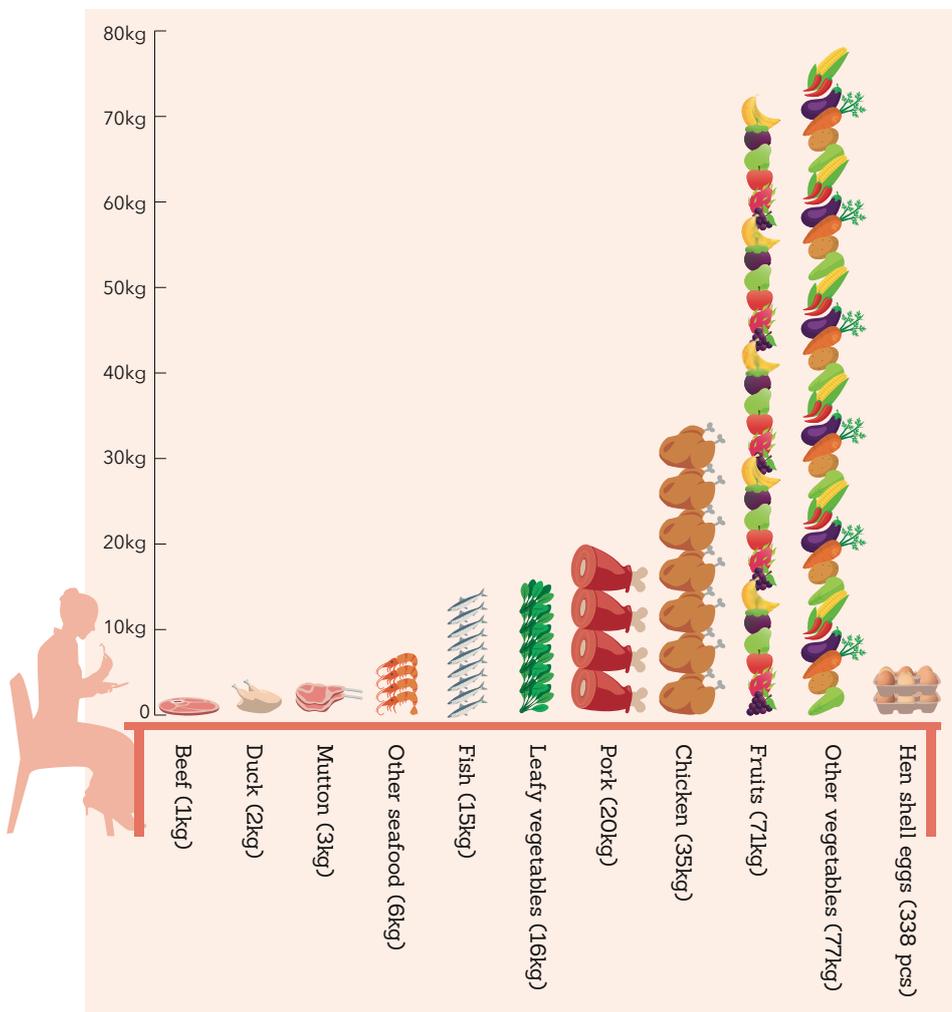
STRENGTHENING OUR
RESILIENCE IN FOOD SUPPLY

We enjoy a wide variety and stable supply of food in Singapore, most of which comes from about 160 countries. Each food type is sourced from a diversified range of sources, so in times of food shortages or price volatility, the impact can be softened. As such, AVA is constantly on a lookout for new sources of food to import from.

Our reliance on imports must be effectively balanced with a greater measure of self-sufficiency that can tide us over any overseas supply disruption. A small percentage of what we eat is home-grown, and AVA support farmers in their efforts to improve productivity. We also engage with the public continually on the importance of supporting local produce.

FOOD SUPPLY IN SINGAPORE

▶ PER CAPITA CONSUMPTION (FY 2016)

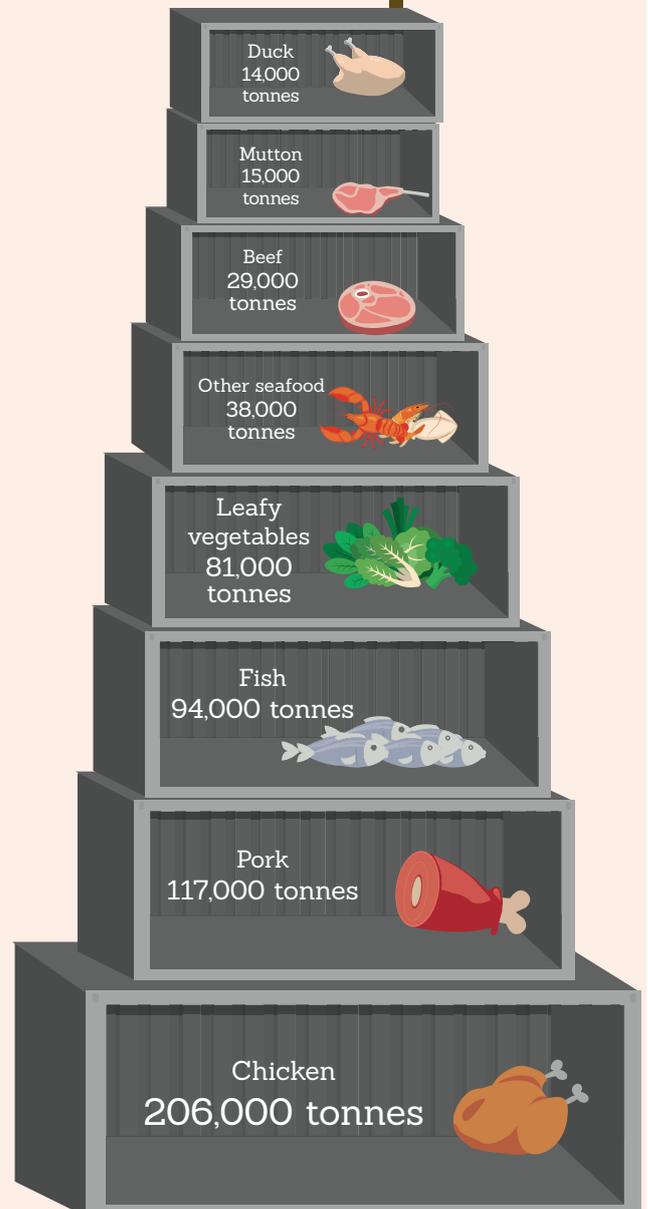
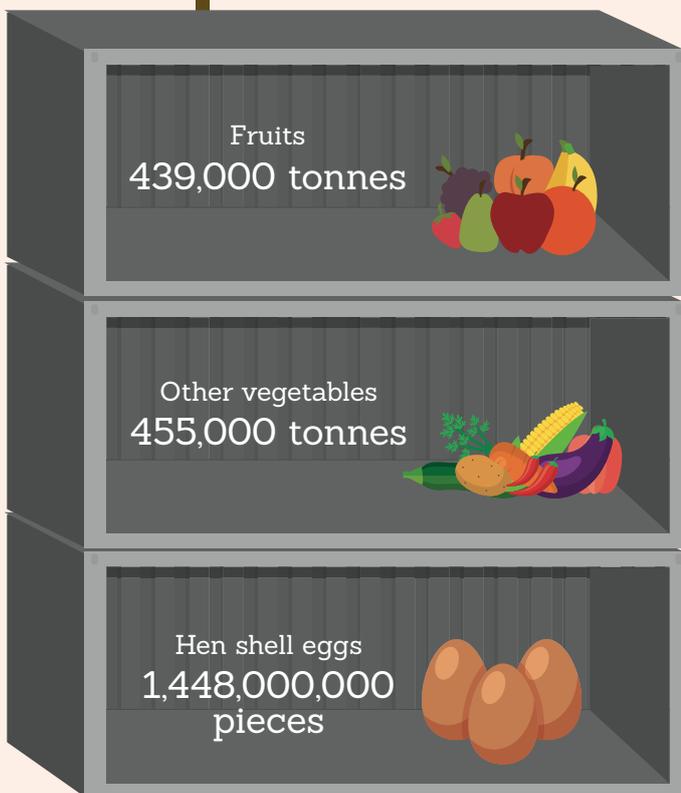


▶ MAJOR IMPORT SOURCES OF KEY FOOD ITEMS (FY 2016)



▶ ANNUAL IMPORT VOLUME TO SINGAPORE (FY 2016)

WELCOME TO SINGAPORE



▶ LOCAL SUPPLY (INCLUDING LOCAL LANDINGS) (FY 2016)



*Figures rounded off to nearest thousand

DIVERSIFYING SOURCES OF IMPORT

▶ EXPANDING SOURCES OF POULTRY AND EGGS

AVA has been actively exploring additional sources of poultry and eggs to import from. To expand our network of frozen poultry suppliers in Thailand, AVA led a delegation to visit and assess prospective establishments there in July 2016. Following the trip, AVA approved 23 more slaughterhouses in Thailand to export frozen chickens, ducks, and geese to Singapore, up from two previously.



In March 2017, AVA also approved layer farms in Thailand to export hen shell eggs to Singapore. The first shipment of 325,000 hen shell eggs from Thailand was expected to arrive in Singapore in April 2017.

Furthermore, in December 2016, a farm in Malaysia received AVA's first-ever approval for the export of quail eggs into Singapore.

▶ SECURING A NEW SUPPLY OF PORK FROM CHINA

AVA has been working closely with the private sector and Chinese authorities in the integrated pig farm project, which will eventually supply Singapore with a new source of pork. This project included the establishment of a Foot-and-Mouth Disease-Free Zone (DFZ) in 2012. To this end, AVA has been helping to build up capabilities. At the same time, the AgriFood Technologies Pte Ltd, a subsidiary of AVA, provided consultancy services to the Jilin City government to develop an integrated food safety system.

In response to a request for AVA's endorsement of the DFZ area to be expanded from 1,450 sqm to 2,625 sqm, AVA conducted an independent audit of the proposed area in August 2016. We have shared our audit findings and recommended rectifications with the Jilin city government.



► STRENGTHENING AGRIBUSINESS COLLABORATION WITH AUSTRALIA

In May 2016, Singapore and Australia agreed to a new package of bilateral cooperation initiatives to give effect to the Australia-Singapore Comprehensive Strategic Partnership. One of these initiatives is to work together to increase agri-trade and investment flows.

In November 2016, AVA led a Singapore delegation of food companies, as well as officers from AVA and International Enterprise (IE) Singapore, to Australia. AVA and its Australian counterparts explored opportunities for collaboration in food security and food safety. The trip also allowed participants to forge business networks with the aim to encourage the export of Australian shell egg, meat, and vegetable to Singapore.



Doing business together

There is a Business Cluster for different agri-food commodities, each providing a platform for the industry, AVA, and other government agencies to discuss common issues and co-create solutions that will continue to ensure a resilient supply of safe food. In August 2016, we organised a combined learning-cum-networking session for all food-related Business Cluster members. During the session, speakers from AVA and other agencies covered topics relating to food security, import control, assistance schemes for small- and medium-sized enterprises, business continuity planning, market readiness assistance, and free trade agreements.

The Indonesia Investment Promotion Centre (IIPC) was also invited to shed light on investment and enterprise laws in Indonesia. In addition, IIPC introduced the agricultural investment opportunities available to foreign investors in different provinces of Indonesia.

► FORGING TIES AND LINKAGES TO ENCOURAGE IMPORTS

During the FY, a number of activities were organised to provide a platform for us to promote bilateral agri-food trading, as well as for our importers to learn about import or investment opportunities overseas.

- 11-15 Apr 2016

► A delegation from the Provincial People's Committee of Thanh Hoa Province, Vietnam, visited Singapore. AVA facilitated the delegation's meetings with IE Singapore and private companies, in the province's efforts to seek investment and promote the development of a food park there.
- 31 Aug 2016

► AVA hosted the 14th 'Indonesia-Singapore Taskforce Meeting for the Promoting of Vegetable and Fruit Exports from Indonesia to Singapore'. A Memorandum of Understanding was signed for the first import of Indonesian bananas into Singapore. The consignment was expected to arrive in April 2017.
- 1 Sep 2016

► The 12th Indonesia-Singapore Agri-business Working Group meeting was held in Singapore as part of continued efforts to encourage bilateral trade in agricultural produce. Discussions revolved around the improvement of logistics, transportation, quality, and cost competitiveness of Indonesian agri-produce. AVA also organised a business matching session and site visits to a fishery port, supermarket, and fish dealer.
- 29-30 Nov 2016

► The Brunei Ministry for Primary Resources and Tourism led a delegation to explore Singapore as a potential market for Bruneian agriculture produce. AVA facilitated a business matching session between the delegation and the Singapore Fruits & Vegetables Importers & Exporters Association.
- 8 Feb 2017

► A delegation from the Brunei Department of Agriculture and Agrifood met AVA to promote the export of fresh produce from Brunei to Singapore.
- 10 Mar 2017

► AVA invited the Investment Promotion Section of the Embassy of Vietnam in Singapore to share with our traders, the investment opportunities in Vietnam's seafood sector.
- 27-30 Mar 2017

► A delegation from South Korea visited Singapore to promote agricultural products from Pyeongtaek City and to explore Singapore as a market for these products.



BOOSTING LOCAL PRODUCTION

Most of what we eat in Singapore comes from overseas. This means we are susceptible to price fluctuations and potential supply disruptions. If we could grow more of our own food and reduce our dependence on imports, we would have a greater buffer against such threats. With the government's aim to boost local supply and at the same time maximise land usage, farms must be able to provide Singapore with even more food.

▶ LOCAL PRODUCTION OF EGGS, LEAFY VEGETABLES AND FISH (2016)



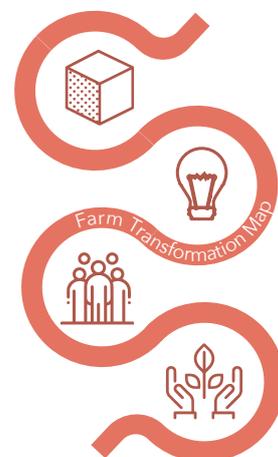
**Rounded off to the nearest thousand*

▶ TRANSFORMING LOCAL FARMS

With limited space, labour constraints, and imminent climate change, the approach to food production needs to transform. Farmers need to leverage on technology and innovation, and AVA has rolled out new initiatives to help them do so.

To enable our local farmers to play an active role in transforming our farming sector, in early 2016, we formed an Industry Consultation Panel (ICP) comprising progressive farmers, researchers, academics and policy makers. Through discussions involving the ICP, AVA developed a Farm Transformation Map. Announced in March 2017, the **Farm Transformation Map** will guide the transformation of our farming sector in four areas:

- 1 **Space**
Focusing on ways to creatively and more efficiently create spaces to support agriculture activities.
- 2 **Innovation**
Focusing on the strategies to grow more with less and to translate research into commercially viable farming solutions.
- 3 **People**
Focusing on building a future local core workforce.
- 4 **Ecosystem**
Focusing on strategies to create an enabling environment for the farming industry to thrive, and to produce for both local and international markets.



In addition, AVA has adopted a new 'account management' approach. Each farm would be assigned a dedicated account manager to advise them on business development, technology adoption, and financial assistance matters. The account managers would also coordinate and facilitate the farms' interactions with various agencies.

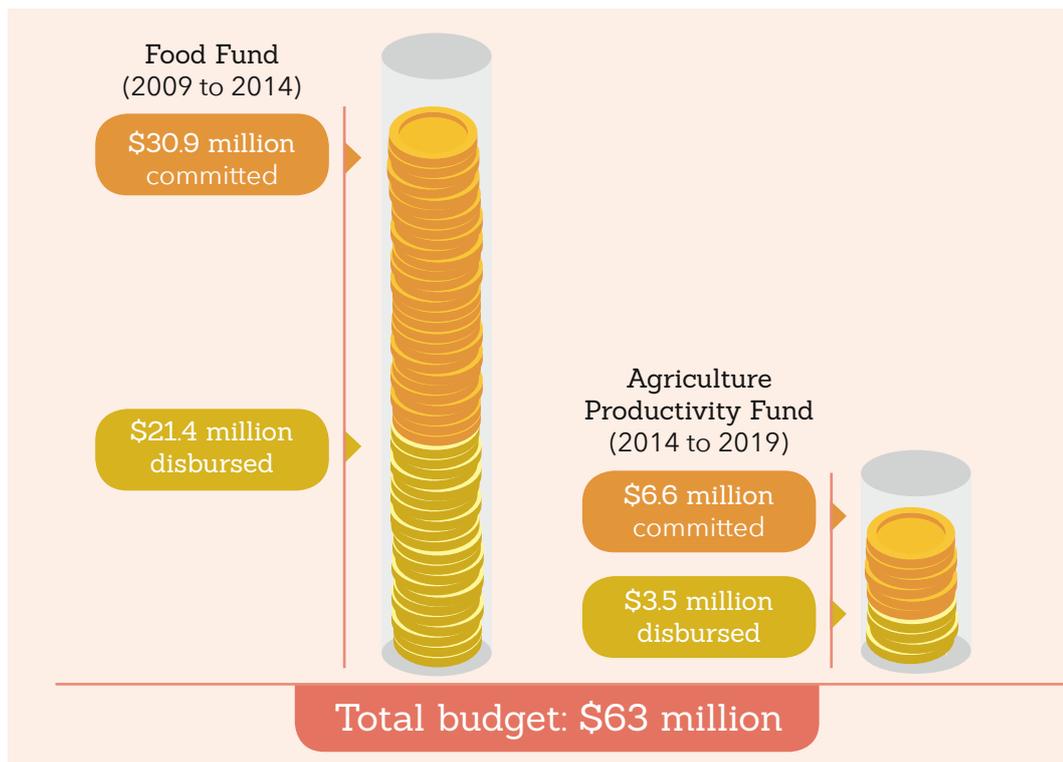
► **FUNDING FARM UPGRADES**

Among many of the AVA's initiatives to help local farms adopt technology, one of them is to provide funding assistance for farm improvements, development of technology and innovation, and R&D.

In December 2009, AVA introduced the first tranche of Food Fund to support local farm capability development to enhance productivity. Subsequently, two more tranches were launched in 2011 and 2013. The Agriculture Productivity Fund (APF) was launched in October 2014 to replace Food Fund, and continues to support local farms in their capability development and drive towards higher productivity.

From April 2017, the Agriculture Productivity Fund (APF) would disburse 30 percent of the approved funding quantum upfront to alleviate cash-flow constraints when farmers invest in expensive farming systems and technologies.

► **AVA'S FOOD FUND & AGRICULTURE PRODUCTIVITY FUND (FY 2016)**





Recipients of APF have cumulatively:



Cut manpower by
82,846 man-hours



Increased production of leafy vegetables by
1,019 tonnes



Increased production of food fish by
323 tonnes



Increased production of hen shell eggs by
4 million pieces

Examples of improvements achieved by recipients of Food Fund & APF

One of our Food Fund recipients, N&N Agriculture, automated the handling of dirty eggs and installed a robotic palletizer. As a result, N&N achieved an increase in production of 120,000 eggs/worker/year and manpower savings of 39,400 man-hours/year.

Sustenir received the APF to purchase an integrated farming system that improved its productivity of leafy vegetables. Sustenir aims to achieve a productivity of 40 tonnes/year and manpower savings of 1,200 man-hours/year.



EDUCATING THE PUBLIC ON LOCAL PRODUCE AND FROZEN MEAT

While AVA works with local farmers to boost production and capability, we also educate the public on the merits of choosing local produce. Through events, roadshows, promotions, and various digital outreach efforts, we raise public awareness of local produce as well as frozen meat as an alternative to chilled meat.



▶ The third series of the **food truck workplace roadshows** were held at SPH News Centre, Mediapolis, Biopolis Epicentre, and Mapletree Business City. With special dishes made using local produce and a mini farmers' bazaar, we reached out to about 12,000 working professionals. Radio deejays from Mediacorp and SPH stations were invited to generate buzz and heighten public awareness of home-grown produce through interactive games and social media.

AVA supported the **Kranji Countryside Association's quarterly farmers' market** events by setting up educational booths to engage with the public. Photo props and instant printouts were also provided. Visitors were encouraged to take photos at the event and spread the love for local produce via social media.



▶ In a bid to bring **culinary institutions** on board the initiative, AVA worked with lecturers and students from Temasek Polytechnic's (TP) Culinary and Catering Management course and the Institute of Technical Education's Technical Diploma in Culinary Arts course. Aside from organising a farm learning trip for the TP lecturers, we also encouraged the use of local produce in these schools' restaurants.



▶ **AVA collaborated with MM2 Entertainment in a movie - 'Take 2' (遇见贵人)** to raise awareness of and promote support for locally farmed produce. TP created an original dish ('Three Treasures Stew, or '西北好运三鲜') for this movie, using local produce. Subsequently, a **video featuring three of the movie cast members** was produced and launched on YouTube. The video achieved over 15.6 million impressions and 608,000 YouTube views within a month since its launch in March 2017.

AVA continued to participate in the annual **Singapore Food Expo** (May 2016) and **Asia Pacific Food Expo** (November 2016) organised by the Singapore Food Manufacturers' Association to raise awareness of locally farmed produce and frozen meat. Through cooking demonstrations, chefs educated visitors on the benefits of choosing these ingredients, as well as how to identify and where to buy them.

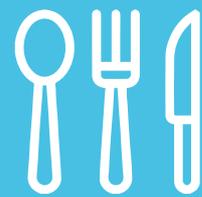
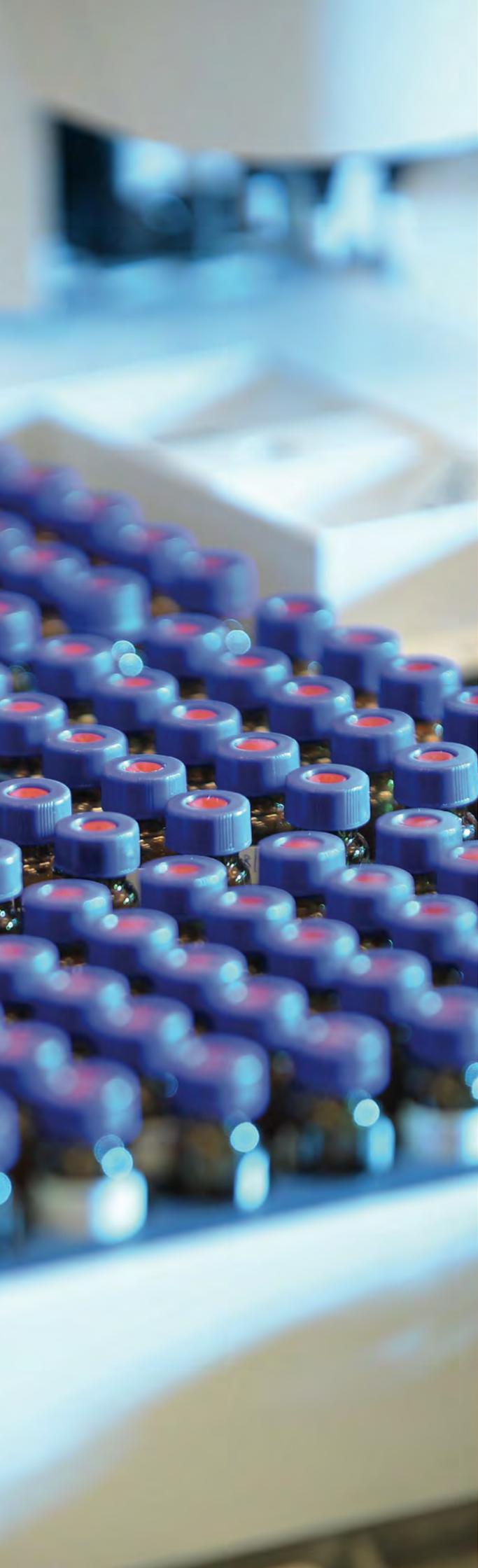


AVA collaborated with **NTUC FairPrice supermarkets** to promote local produce via in-store branding, customised product packaging, quarterly in-store promotions, and newspaper advertisements that emphasise the quality and freshness of local produce. We also supported FairPrice's annual 'Made in Singapore' fair by organising in-store cooking demonstrations that showcase local produce.



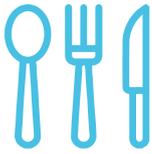
AVA facilitated the media profiling of local farmers and their farm produce in The New Paper. The **advertorials featured food recipes** created by a newspaper food column editor.





Food Safety

From accreditation at source to post-entry laboratory testing, we do our best to give you peace of mind. Your well-being is in good hands of the food safety stalwart.

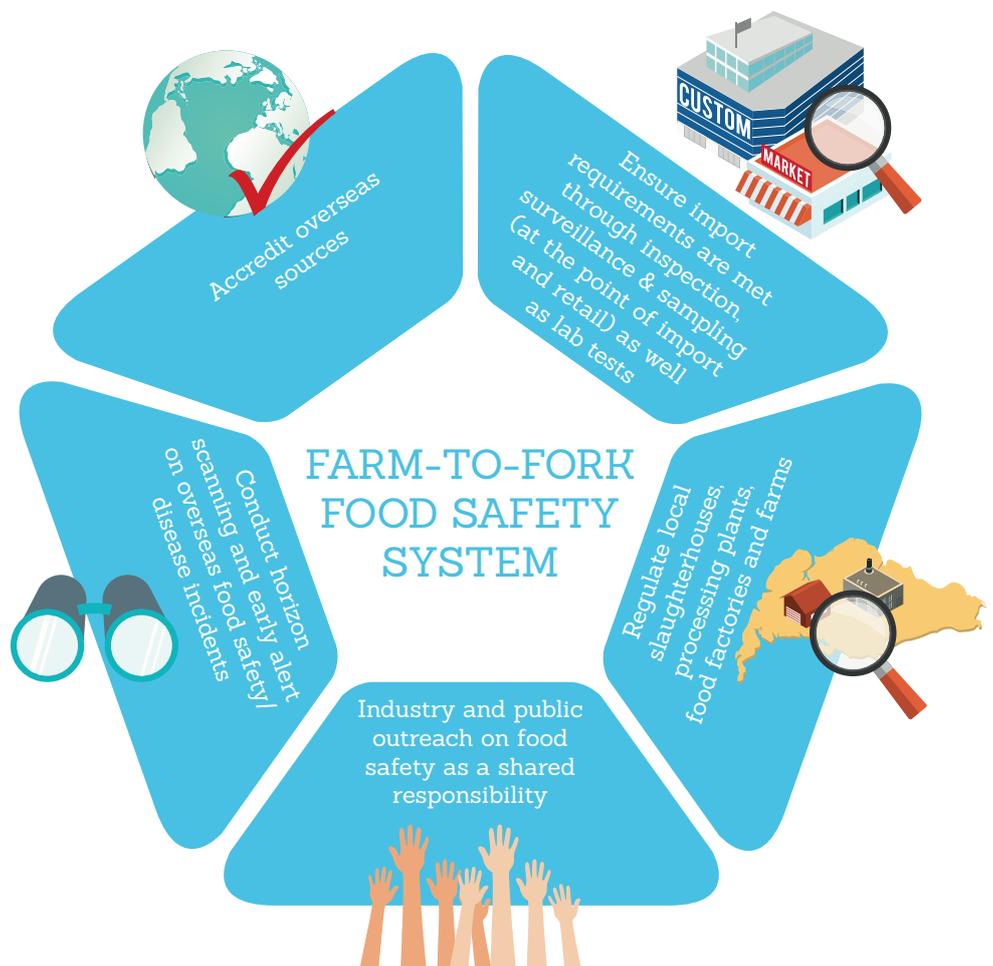


UPHOLDING FOOD SAFETY

AVA adopts a science-based risk management approach to ensure that imported and locally produced food in Singapore can be consumed with peace of mind. AVA will assess the likelihood and severity of food safety hazards, so as to adopt appropriate measures to mitigate the risks to our consumers. To enhance our efforts, AVA also scans the global horizons to identify developments, which can potentially pose threat to food safety, food supply, animal health and plant health in Singapore. As food safety is a shared responsibility, AVA also engages with the industry and public to do their part in keeping food safe for consumption.

► FARM-TO-FORK FOOD SAFETY SYSTEM

AVA's integrated food safety system effectively manages food safety risks from 'farm-to-fork'. This system comprises regulations; source accreditation; inspection and surveillance; laboratory analysis; industry and public outreach; and horizon scanning.



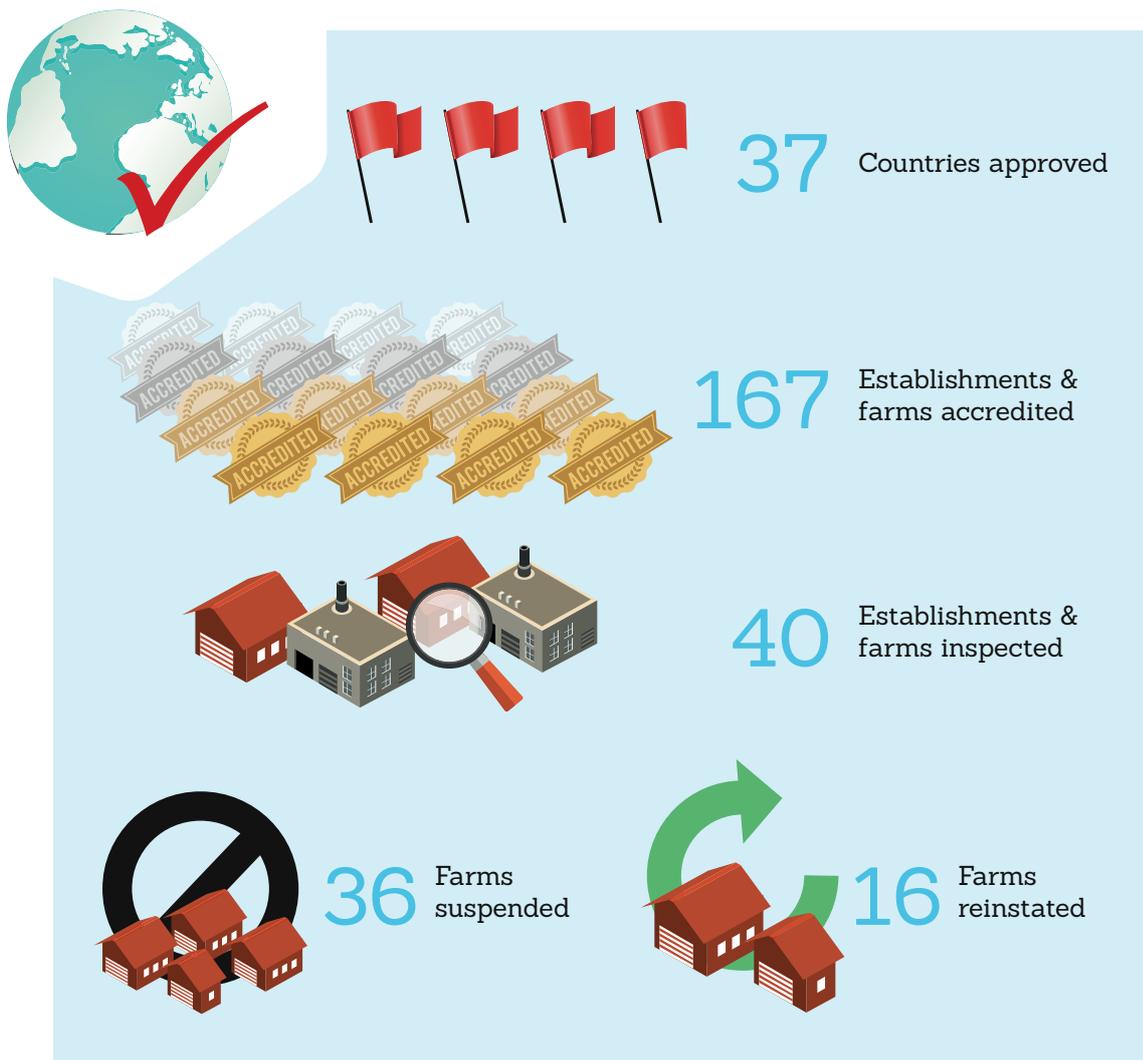
REGULATING IMPORTS

▶ STARTING AT SOURCE AND POINT OF IMPORT

In order to ensure resilience in our food supply, AVA proactively seeks to identify and accredit new food sources. Accreditation is an upstream measure in our food safety system. AVA assesses the robustness of an exporting country's national animal health and food safety system. If a country is approved as a source, the export establishment will then be individually evaluated to ensure that they meet our food safety requirements. An inspection visit to the country and the export establishment may also be conducted. In addition, we suspend imports from sources where products pose significant food safety risks. They will only be reinstated after they have corrected their deficiencies.

At the point of import, consignments are systematically selected for inspection and sampled for laboratory testing. The samples are tested for pathogens as well as chemical contaminants and residues. Food samples are also taken from retail outlets for testing.

Accreditation of sources (FY 2016)





Inspection, surveillance & sampling at point of



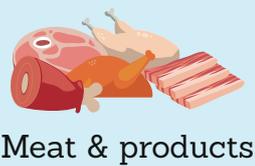
Import permits issued



Consignments inspected



Volume inspected (tonnes)



Meat & products

24,029

82,021

301,878



Fish & products

191,850

1,698

3,939



Eggs

655

952

5,764



Fruits & vegetables

260,865

7,455

3,319



Processed food

444,746

8,031

7,763

Total:

922,145

100,157

322,663

import & retail markets (FY 2016)



Value inspected

**\$1
billion**

**\$54.3
million**

**\$19
million**

**\$5
million**

**\$24
million**

**\$1.1
billion**



Samples tested

7,677

1,698

914

6,598

7,352

24,239

▶ FIGHTING ILLEGAL IMPORTS

Illegal food imports from unknown sources are a food safety threat. They may pose a risk to our public and animal health. As part of efforts to prevent unsafe food from entering Singapore, AVA acted on 453 cases of illegal food imports in FY 2016. Close to 97 percent of these cases involved travellers bringing in food items in excess of the maximum quantities allowed for personal consumption. As the excess quantities brought in were not big, offenders were either warned or fined.

Any person who illegally imports food from unapproved sources is liable to a maximum fine of \$50,000 and/or a two-year jail term for the first conviction. A subsequent conviction carries a fine of up to \$100,000 and/or imprisonment for a term not exceeding three years. In FY 2016, four cases of illegal food imports were prosecuted in court.

▶ ENSURING REGULATIONS STAY UP-TO-DATE AND INTERNATIONALLY ALIGNED

Amendments to the Food Regulations were gazetted on 31 March 2017, and were expected to take effect on 1 April 2017. The majority of the amendments were related to the use of new additives, expanded use of existing additives and health claims, as well as stricter requirements to better protect public health. These amendments are in line with the latest scientific and regulatory developments in international standard-setting bodies. The amendments have:

- Allowed the use of new additives and ingredients (e.g. beta-palmitin in infant formula).
- Extended the use of existing food additives to additional food categories (e.g. quillaia extract in alcoholic beverages).
- Allowed the use of a new health claim relating to barley beta-glucan.
- Lowered the maximum limit for lead in infant formula.
- Established a maximum limit for inorganic arsenic in polished rice.
- Allowed pre-packed rice to be declared in grams or kilograms as appropriate.
- Revised the quality criteria for sesame oil and sunflower seed oil.
- Removed the maximum residue limits for 11 pesticides that are no longer used internationally.

To stay abreast of international food safety developments, AVA participates in Codex Alimentarius meetings where food safety and quality standards are discussed. The 39th Codex Alimentarius Commission adopted 31 new and revised Codex standards. AVA will take these developments into consideration and review our Food Regulations to ensure our legislation stays relevant.



Monitoring the import of meat from Brazil

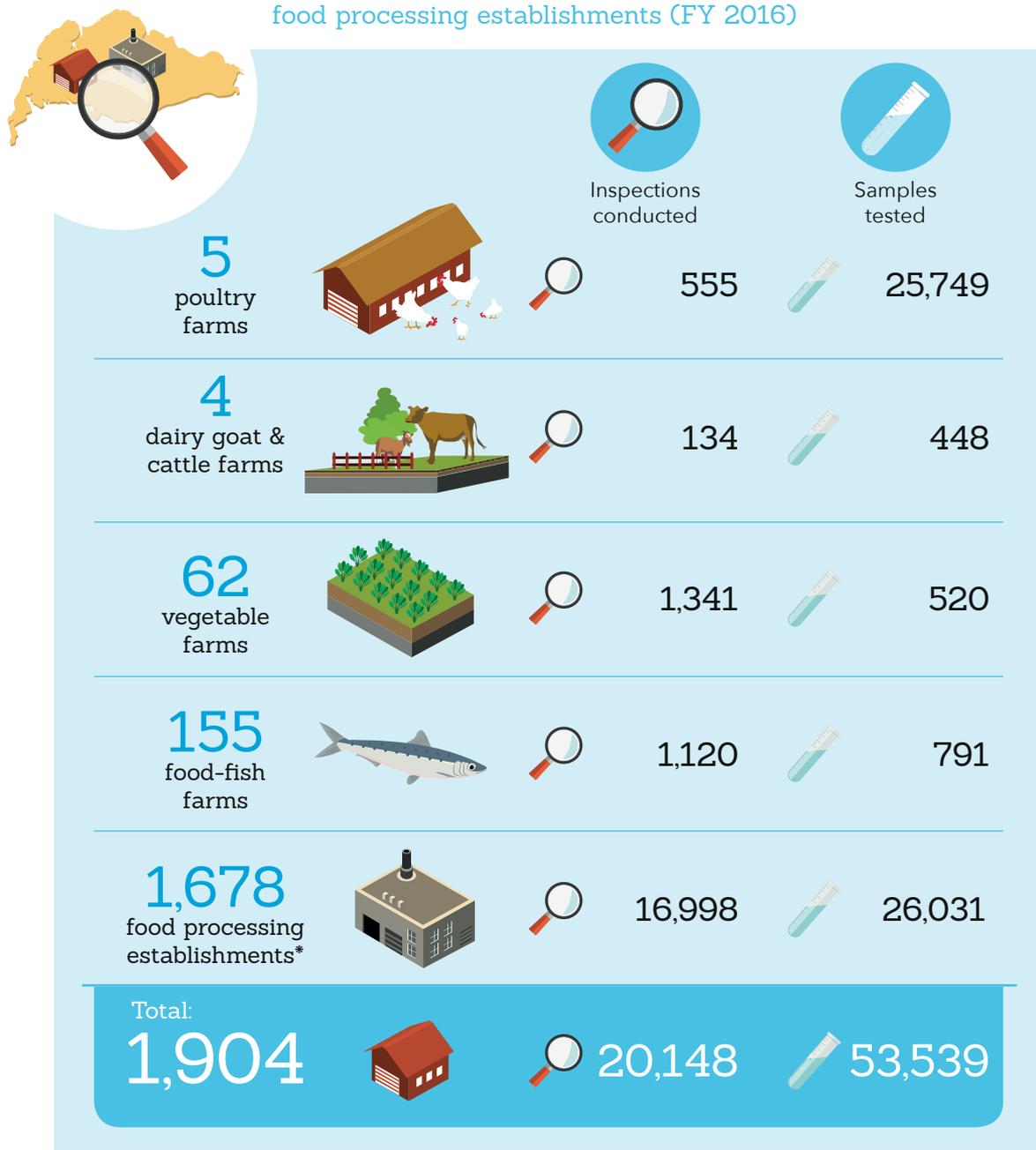
In March 2017, Brazilian authorities investigated a case of possible corruption involving 21 of its major meat exporters. Singapore did not import any meat from the implicated establishments, because none of them were on our approved list of establishments. Nevertheless, AVA stepped up surveillance of meat and meat products imported from establishments in Brazil that were approved by AVA. We monitored the situation closely, and kept up with the Brazilian authorities for timely updates. We also worked with our meat importers to be prepared to ramp up alternative sources if necessary.

REGULATING LOCAL FOOD PRODUCTION

▶ REGULATING LOCAL FARMS AND FOOD ESTABLISHMENTS

AVA licenses all local farms and food establishments, including processing establishments, slaughterhouses, the abattoir, and cold stores. Site inspections are carried out to ensure that these establishments comply with our licensing conditions and observe proper bio-security, food safety, and hygiene practices. Samples are also taken for a range of food safety tests for parameters such as aflatoxins, *Brucella*, *Campylobacter*, chemical contaminants, dioxins, drug residues, E.coli, E.coli O157:H7, heavy metals, marine bio-toxins, melamine, microbiological pathogens, nitrate, pesticide residues, *Salmonella*, and *Salmonella Enteritidis*.

Inspection & sampling in local farms & food processing establishments (FY 2016)



*Includes 10 chicken slaughterhouses, 4 duck slaughterhouses, and 1 pig abattoir.

▶ SETTING THE BENCHMARK FOR GOOD FARMING PRACTICES

The Good Aquaculture Practice for Fish Farming (GAP-FF) Certification and Good Agricultural Practice for Vegetable Farming (GAP-VF) Certification schemes are two sets of guidelines that help local fish and vegetable farms to improve in areas such as farm maintenance, practices, and management. These schemes provide assurance to retailers and consumers by setting benchmarks for the production of safe and good quality fish and vegetables. In FY 2016, there were four GAP-FF and eight GAP-VF certified farms in Singapore.

In addition, the quality of eggs produced by all three local chicken layer farms continued to be assured under AVA's Singapore Quality Egg Scheme (SQES). Under SQES, farms are required to ensure that their facilities are hygienic, and quality control monitoring systems are well maintained at all times.



Managing impacts of an oil spill incident



Following the oil spill incident on 3 January 2017, AVA visited coastal fish farms in the East Johor Strait (EJS) daily to monitor the situation and assist in the clean-up. We also worked together with officers from the Maritime and Port Authority of Singapore and National Parks Board to mitigate the damages from the oil spill. Oil absorbent pads and canvases were deployed to farmers near the spill site to help protect their fish stock.

To ensure food safety and public health, sales of fish, crustaceans, and mollusc for all 12 EJS coastal fish farms were suspended. We collected samples from coastal fish farms in the EJS, including those not directly affected by the oil spill, for food safety tests. The samples underwent a combination of sensory and chemical analyses to determine if they were contaminated with polycyclic aromatic hydrocarbons - a group of chemicals found in crude or industry oil.

Following the completion of clean-up operations and satisfactory laboratory testing results, all sale suspensions were lifted by 14 March 2017.

▶ GRADING LOCAL FOOD PROCESSING ESTABLISHMENTS

Licensed local food processing establishments are audited annually to determine their grading status. AVA also provides advice to help establishments improve and upgrade their premises.

Grading of local food establishments (FY 2016)



In addition, food storage warehouses must be registered with AVA to facilitate traceability. This registry enables AVA to promptly notify warehouses if there is a need for an immediate recall of food products. All registered food storage warehouses are also subjected to inspections by AVA. There was an addition of 94 warehouses registered in FY 2016, bringing the total number of registered warehouses to 1,245.

▶ FACILITATING RELIGIOUS SLAUGHTERING: KORBAN 2016

In FY 2016, AVA issued 55 special permits for the religious slaughtering of 68 goats and 3,970 sheep. These included the 2,100 sheep from Australia and 1,869 lambs from Ireland, which were slaughtered at 28 approved premises for Korban on 11-12 September 2016.

To ensure uniformity in animal welfare and food hygiene standards during Korban, the same standard operating procedures, training, and regulatory oversight were implemented at all premises. Emphasis was placed on making sure there was sufficient ventilation in the lairages. Improvements in the housing conditions of the animals were observed. AVA inspected all 28 premises and found that animal welfare standards for Korban 2016 were satisfactory, and in line with international standards and AVA's Code for Animal Welfare. All premises were equipped with adequate facilities to accommodate the animals, as well as trained handlers and slaughtermen.



Photo: MUIS

ENHANCING LABORATORY CAPABILITIES

AVA's Veterinary Public Health Laboratory (VPHL), with its comprehensive suite of diagnostic tests for both known and unanticipated food-borne hazards, plays a pivotal role in enforcing our food safety standards. In FY 2016, VPHL generated close to 2.6 million laboratory results from tests conducted on about 53,000 samples of imported and locally produced food products.

VPHL testing volume (FY 2016)

	 Samples tested	 Tests performed	 Results obtained
 Export health Certification	 2,336	 9,704	 15,571
 Import control	 34,789	 159,949	 1,737,167
 Surveillance	 13,366	 89,321	 707,709
 Commercial services*	 2,739	 6,056	 135,573
 Inter-lab proficiency testing	 149	--	--
Total	 53,379	 265,030	 2,596,020

*Including commercial testing services provided, upon request, to countries such as Brunei, Indonesia, Malaysia, Philippines, China, and Myanmar.



VPHL continues to be accredited with the Singapore Accreditation Council-Singapore Laboratory Accreditation Scheme (SAC-SINGLAS). Since being accredited with ISO/IEC 17025 in 2000, the total number of accredited methods has grown to 221, with 11 new methods accredited in FY 2016 (Table 1).

VPHL benchmarks its testing capabilities by participating in several inter-laboratory proficiency (ILP) testing programmes organised by reputable international ILP scheme providers. These programmes assess the laboratory's effectiveness in discerning parasites, pathogens, chemical contaminants, additives, preservatives, allergens, nutritional components, and pesticides, amongst others, in food. AVA continued to perform well in these programmes.

In FY 2016, VPHL took part in three ILP schemes administered by the UK's Food and Environment Research Agency: Food Examination Performance Assessment Scheme, Food Analysis Performance Assessment Scheme, as well as the Laboratory Environmental Analysis Proficiency Scheme (Emergency Contingency Scheme), which tested VPHL's capabilities in the non-targeted screening of an unknown contaminant in potable water.

We also participated in other proficiency testing schemes organised by:

- Food and Agriculture Organisation of the United Nations
- Public Health England (UK)
- Centre for Environment, Fisheries & Aquaculture Science (UK)
- EU Community Reference Laboratory
- RIKILT - Institute of Food Safety of Wageningen University & Research (Netherlands)
- US Department of Agriculture
- Global Proficiency Limited (New Zealand)
- Asia Pacific Laboratory Accreditation Cooperation
- Asia Pacific Economic Cooperation
- ASEAN Reference Laboratories

During the FY, 29 additional methods were developed to establish new testing capabilities (Table 2), and 20 key enhancements were made to improve accuracy and turnaround time (Table 3).



Table 1: New tests accredited by SAC-SINGLAS (FY 2016)

- Methanol in alcoholic beverages
- Fish species identification by DNA sequencing
- Determination of Methylglyoxal in honey by liquid chromatography
- Isolation of *Salmonella* spp in all food products using a chromogenic agar: MB-030 (ASAP)
- Isolation of *Salmonella* spp in all food products using a chromogenic agar: MB-031 (ChromID Salmonella)
- Qualitative and quantitative detection of soya endogenous gene *lectin* by real-time PCR in food and feed
- Qualitative and quantitative detection of Bt11 maize DNA by real-time PCR
- Qualitative and quantitative detection of Mon87460 maize DNA by real-time PCR
- Multi-component method for determination of Brevetoxin 2, Brevetoxin 3, Okadaic acid, and Domoic acid using LC-MS/MS
- Determination of Azaspiracids in shellfish and fish tissues using LC-MS/MS
- Determination of Trichothecenes in food and feed by LC-MS/MS



Table 2: New methods developed by VPHL (FY 2016)

Drug residues

- Colistin in imported meat and meat products

Pesticide residues

- More than 170 pesticide residues (using rapid GC-MS/MS method)
- More than 300 GC-amenable pesticides (using comprehensive GC-MS/MS method)

Chemical contaminants

- Chromium in water (using LC-ICP/MS)
- PBDEs (using GC coupled with ICP-MS/MS)
- Total cyanide in water and fish (using Ion Chromatograph)
- Migration of 20 primary aromatic amines from food contact materials (using LC-MS/MS)
- 4-Methylimidazole in sauces (using LC-MS/MS)
- Heavy metals in seafood and its products (using ICP-OES)
- Heavy metals in seawater (using ICP-MS)
- Mercury in rice flour (using the direct mercury analyser)
- Benzene, Toluene, Ethylbenzene, and Xylene in water (using GC-MS)
- 10 gamma-emitting radionuclides (using the gamma spectrometer with high purity germanium detector)

Food additives & preservatives

- Sulphur Dioxide in 'belachan' chilli sauce (using LC-MS/MS)
- L-Theanine in tea (using HPLC)

Food-borne toxins

- Ergosinine (ergots alkaloids) in cereals (using HPLC)
- Pyrrolizidine alkaloids (Senkirkine, Heliotrine, Seneciphylline, Senecionine, Monocrotaline, Retrorsine) in honey (using LC-MS/MS)
- Tutin in honey (using LC-MS/MS)
- Paralytic shellfish toxins in shellfish (multi-component method using LC-MS/MS)
- Lipophilic marine biotoxins in shellfish using (multi-component method using LC-MS/MS)

Genetically modified materials

- DAS-68416-4 soya (qualitative and quantitative)

Food allergens

- Milk protein (by ELISA)

Food authentication

- Equine (horse) (by species-specific Polymerase Chain Reaction [PCR])
- Turkey (by species-specific PCR)

Food microbiology

- *Campylobacter* in poultry products (using PCR)
- *Streptococcus agalactiae* in fish (isolated using PCR)
- *Streptococcus agalactiae* in fish (using in-house culture method)
- *Listeria monocytogenes* (enumerated using ISO 11290 method)
- *Listeria monocytogenes* (enumerated using in-house culture method)



Table 3: Key enhancements made by VPHL (FY 2016)

Drug residues

- 127 drugs in meat, milk, egg, and animal feed (using multi-residues screening method)
- Estrogens and stilbenes in meat, milk, and eggs
- Avermectins in meat, eggs, and milk
- Nitrofurans and lincomycins in feed and water samples (using multi-residues screening method)

Pesticide residues

- More than 50 LC-amenable new pesticides (using LC-MS/MS)

Chemical contaminants

- Phenol in fish (using GC-MS/MS)
- Acrylamide, including an additional matrix (oil) (using LC-MS/MS)
- Phthalates, including two additional food matrices (biscuits and table salts) (using GC-MS/MS)

Food additives and colours

- Sweeteners (using LC-MS/MS)
- Sudan dye, including Sudan Red B (using LC-MS/MS)

Food-borne toxins

- Aflatoxin B&G in tea leaves (using HPLC)
- Patulin in fruit juices (using LC-MS/MS)
- Bacillus Diarrhoeal Enterotoxins (using an alternative test kit)
- Staphylococcal Enterotoxins (using an alternative test kit)

Genetically modified materials

- CaMV 35S promoter and NOS terminator (by duplex real-time PCR using one assay)

Food authenticity

- Poultry, Bovine, Ovine and Porcine specifics (by PCR)

Food microbiology

- *Campylobacter* spp (*C.jejuni*, *C.coli*, *C.lari*) in poultry products (isolated using a new chromogenic agar)
- *Salmonella* spp (isolated using a new chromogenic agar)
- Norovirus in shellfish (qualitative real-time PCR screening using a commercial kit)
- Hepatitis A in shellfish (qualitative real-time PCR screening using a commercial kit)



Assessment of food contact materials and chemicals in food

AVA conducts risk assessments on the dietary exposures of food chemicals in our daily food intake. In FY 2016, our assessment of aflatoxin B1 in nuts and corn showed that the current legislative limit for these foods is sufficient to protect the health of the population. We did the same for food-contact materials and articles to ensure that they are safe for application. Aluminium disposable wares were found to be safe to use following our assessment.

▶ SUPPORTING REGIONAL DEVELOPMENT

One of VPHL's roles – as a World Organisation for Animal Health (OIE) Collaborating Centre for Food Safety and the appointed ASEAN Reference Laboratory for Pesticide Residues and Environmental Contaminants – is to support the region in enhancing laboratory testing capabilities. Playing our part in this role, we conducted four workshops and one laboratory proficiency testing programme in FY 2016.

19-20 Apr 2016	▶	Workshop for the ASEAN-Physikalisch-Technische Bundesanstalt (National Metrology Institute of Germany) project team on strengthening food safety in ASEAN using proficiency testing
11-13 Jul 2016	▶	Workshop to discuss and finalise a plan of action on anti-microbial resistance (AMR) for ASEAN, as part of the ASEAN Sectoral Working Group for Livestock Special Session on AMR, as well as the ASEAN National Focal Points for Veterinary Products Meeting
25-26 Aug 2016	▶	Food chemical risk assessment training programme, as part of the World Bank Global Food Safety Partnership
22-25 Nov 2016	▶	Workshop on the detection of drug residues in seafood products, organised as part of outcomes of the ASEAN-China SPS Cooperation Ministerial Meeting
Ongoing since Nov 2016	▶	Polycyclic aromatic hydrocarbons proficiency tests for ASEAN member countries



▶ COLLABORATING IN RESEARCH

AVA also continued to collaborate with the Food & Agriculture Organisation (FAO), International Atomic Energy Agency (IAEA), and Nanyang Technological University (NTU) on various research projects that enhance food safety laboratory testing:

- **Accessible Technologies for the Verification of Origin of Dairy Products as an Example Control System to Enhance Global Trade and Food Safety (2014-2018)**

A collaboration with FAO and IAEA that aims to establish methods to trace the origins of milk and milk products, and detect adulterations in them, using stable isotope signatures and trace elements fingerprinting. Collaborators have begun building up the database of imported and locally produced milk.

- **Novel Analytical Approach in ASEAN Region to Test Aquaculture Chemicals by Harnessing the Power of High Resolution Mass Spectrometry (HRMS), Triple Quadrupole Mass Spectrometry (MS), and Stable Isotopes (2015-2020)**

A collaboration with FAO and IAEA that aims to effectively detect and control the use of chemicals in aquaculture products. Preliminary developmental work on new HRMS screening methods was completed and the exact MS database for commonly used veterinary drugs in aquaculture products was established.

- **Enhancing Food Safety Laboratory Capabilities and Establishing a Network in Asia to Control Veterinary Drug Residues and Related Chemical Contaminants (2015-2019)**

In collaboration with IAEA, a training course was organised in March 2017, which covered basic equipment maintenance and troubleshooting.

- **Behaviour of Silver, Titanium Dioxide, and Silica Nanoparticles in Various Food Matrices and Conditions (2015-2017)**

A collaboration with NTU that aims to enhance our understanding of the physic-chemical properties of nano-materials, which will be critical for the toxicological assessment of nano-materials in food or food packaging. The Corona effect of nano-materials in the presence of the food ingredients was characterised. The implication of these effects on food-related nano-material analysis was also studied. With better understanding of the physical-chemical properties of nano-materials, AVA established a workflow to isolate and analyse nano-materials from food samples.

▶ CONTRIBUTING TO SCIENTIFIC PROGRESS

In FY 2016, AVA scientists and NTU researchers co-authored a scientific publication titled 'The Multi-Facets of Sustainable Nanotechnology – Lessons from a Nano-safety Symposium', which was published in 'Nanotoxicology' (Volume 9, 2015 - Issue 3).

Futhermore, we presented on the following topics at four conferences in FY 2016:

22-25 May 2016	▶ 'Analytical Techniques for Monitoring Veterinary Drug Residues in Poultry in Singapore' and 'Multi-residue Techniques for Veterinary Drug Analysis' at the Euro Residues VIII Conference
12-15 Jun 2016	▶ 'Detection and Characterisation of Engineered Nanoparticles in Food Products' at the 29 th International Symposium on Polymer Analysis and Characterisation
26-30 Sep 2016	▶ 'Detection and Characterisation of Nanoparticle Corona in Food Products' at the 11 th International Particle Toxicology Conference
29 Aug - 2 Sep 2016	▶ 'A Survey on Dioxins (PCDD/Fs), Dioxin-like PCBs, and Indicators PCBs in Beef' at the Dioxin Conference during the 36 th International Symposium on Halogenated Persistent Organic Pollutants

ENGAGING WITH THE INDUSTRY AND PUBLIC

► RECOGNISING THE BEST IN THE INDUSTRY

The annual AVA Food Safety Awards Night recognises food companies for their sustained efforts in upholding stringent food safety standards. It is also a platform for us to commend those who played an active role in food safety public education.

On 29 July 2016, one Platinum, eight Silver, and nine Bronze awards as well as 144 Certificates of Commendation were presented to deserving local food companies with sustained A-grading. AVA also acknowledged the public education efforts of our food safety partners, and renewed the food safety partnership status of three companies. About 800 guests attended the event, which was graced by Dr Koh Poh Koon, Senior Minister of State for National Development & Trade and Industry.



► ENGAGING WITH THE INDUSTRY

In FY 2016, AVA continued to engage with the industry with the aim to enhance its food safety competency. Industry seminars and exhibitions were organised on 2 November 2016 and 22 February 2017 to heighten awareness of the Hazard Analysis and Critical Control Points (HACCP) food safety management system, average quantity system, good manufacturing practices, food defence, pest management, and use of personal protective equipment.

Besides outreach through events, AVA also engages with the industry in regular dialogues that facilitate mutual understanding and collaboration. Throughout the FY, five sessions of dialogues between AVA and industry representatives were held. Topics such as food safety regulations, industry trainings, and issues related to the inspection, labelling, and clearance of imported food were discussed.

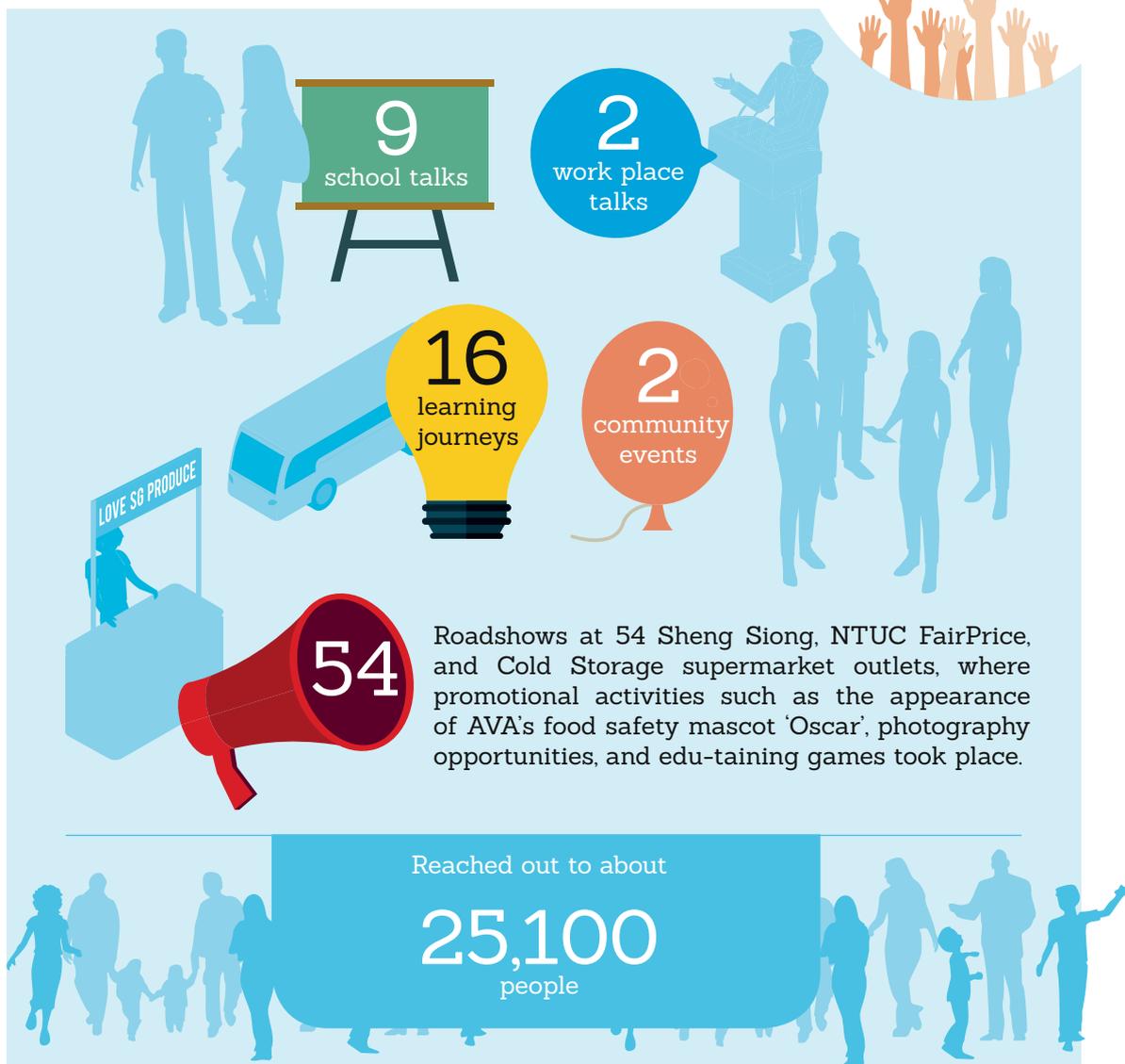


▶ EDUCATING THE PUBLIC



Food contamination can occur at any point of the food chain. While the government and food industry continue to work together to ensure food safety, it is also important for consumers to be equipped with the knowledge of food safety risks and safe food practices to avoid the risks. In FY 2016, AVA organised a series of public education activities such as talks and roadshows to heighten awareness of food safety. Food safety tips and news were regularly posted on AVA's social media platforms throughout the FY.

Food safety public education activities (FY 2016)







Animal Health & Welfare

We work hand-in-hand with various stakeholders to keep animals healthy and safeguard their welfare. We strive towards a community where animals co-exist in harmony with you and me.



ENSURING ANIMAL HEALTH

To keep major animal diseases of public health and economic significance out of Singapore, AVA has put in place a comprehensive and integrated risk-based programme, which includes import regulation and inspection, laboratory testing, and surveillance. This integrated system has continued to ensure that Singapore remains safe from exotic disease threats such as Foot & Mouth disease (FMD), rabies, Nipah virus, Avian Influenza (bird flu), and Bovine Spongiform Encephalopathy (BSE).

KEEPING OUT ANIMAL DISEASES

The regulation of animal imports into Singapore is a key strategy in preventing the introduction of animal diseases. The import of animals into Singapore is subject to AVA's import conditions, including vaccination and health certification requirements. Depending on the country of export, animals may have to undergo post-arrival quarantine at AVA's Sembawang Animal Quarantine Station. Our rigorous system of quarantine and health checks mitigate the risk of animal diseases from entering Singapore.



Licences, permits, and health certificates issued for animal imports (FY 2016)



Pigs, poultry, and eggs

35,487

Animals
(dogs, cats, small mammals, livestock, zoo animals)

3,102

Biologics

199

Birds

115

Ornamental fish

28,481

Eggs
(Specific Pathogen-Free eggs, specimens for laboratory tests)

1

Products
(blood, sera, urine, clinical specimens)

704

Total: 68,089



▶ COMBATTING ILLEGAL IMPORTS OF ANIMALS

Animals that are smuggled into Singapore are of unknown health status and pose a risk of introducing exotic diseases into the country. We collaborate closely with the Immigration and Checkpoints Authority (ICA) to detect illegal import of animals. In June 2016, a man was sentenced to six months' jail in court for smuggling six puppies into Singapore. He was also sentenced to three months of jail for subjecting the puppies to unnecessary suffering or pain. In August 2016, another man was sentenced to six months' imprisonment for illegally importing three puppies, and three months' imprisonment for subjecting the puppies to unnecessary suffering or pain.



Illegal imports intercepted (FY 2016)

	Poultry eggs	Animals and birds
Total no. of cases	1	16
No. prosecuted in court	-	6
No. compounded	-	7
No. warned	1	3

▶ SAFEGUARDING AGAINST RABIES

Rabies is a fatal viral disease that can be transmitted to humans by the bite of a rabid animal. Singapore has been free from rabies since 1953. AVA's risk-based system of categorising countries based on an assessment of their rabies status and disease control measures has been instrumental in keeping Singapore free from the disease. AVA regularly and systematically reviews the status of countries, depending on their rabies situation. In FY 2016, AVA's assessment led to the re-classification of Jersey and Luxembourg as Category B countries. Other countries in this category with a very low risk of rabies incursions included Japan, Hong Kong, Switzerland, Liechtenstein, Sweden, and Norway.

▶ STAYING VIGILANT AGAINST BIRD FLU



Although bird flu viruses mainly infect birds, these viruses can sometimes infect people and cause illness, ranging from flu-like symptoms to severe respiratory diseases leading to death. And although Singapore is free from bird flu, it is endemic to the region. Thus, AVA continues to remain vigilant and maintain the precautionary measures put in place to prevent an incursion.

In March 2017, an outbreak of the H5N1 bird flu was reported in Kelantan, Malaysia. Singapore's poultry and egg supply was unaffected because we do not import eggs from Kelantan, which is not an approved source. Singapore

only allows import of poultry and eggs from disease-free-zones in Malaysia, which are Johor, Malacca, Negri Sembilan, Selangor, and Perak. Nevertheless, AVA stepped up existing measures, and increased surveillance and inspections to prevent an incursion of the disease. Local farms were also alerted to beef up their bio-security measures.

In addition, AVA continued to assist Indonesia in the control and management of bird flu outbreaks in Kepri. In FY 2016, AVA supplied rapid test kits, laboratory consumables, and personal protective equipment (PPE) in support of Kepri's bird flu surveillance. AVA officers visited Batam and Bintan regularly to exchange information on bird flu. In addition, we contributed public education materials to supplement Batam's outreach efforts targeted at primary schools.



AVA also continued to ensure our bird flu emergency preparedness plan remains effective. On 23 February 2017, we successfully completed our eighth exercise to test our crisis management framework and operational readiness in responding to an outbreak of bird flu. Code-named 'Exercise Gallus VIII', the exercise tested the operational readiness of AVA's third-party logistics partner in:

- Setting up of the required infrastructure to support bird flu operations in a poultry farm.
- Delivering the essential supplies such as PPE.
- Delivering support services, such as assisting officers in the donning of PPE and decontamination.



Partnering Australia in emergency preparedness for animal diseases

Under the Singapore-Australia Comprehensive Strategic Partnership, a Government-to-Government agreement will be developed to improve preparedness and response capabilities for animal health emergencies. In a sharing session held from 20 to 24 February 2017, a representative from Australia's Department of Agriculture and Water Resources provided useful technical knowledge related to emergency preparedness and response plans for bird flu and rabies.

KEEPING WATCH OVER LOCAL FARMS

We continued our surveillance and inspection of local farms for timely detection, treatment, and containment of animal diseases.



Animal disease surveillance in local farms (FY 2016)

3
captive bird
farms



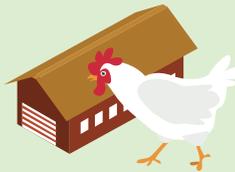
- Bird flu
- Newcastle Disease

4
dairy goat &
cattle farms



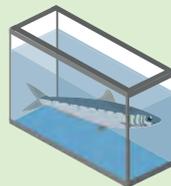
- Bovine Tuberculosis
- BSE
- *Campylobacter*
- Contagious Bovine Pleuropneumonia
- FMD
- *Brucella*

5
poultry
farms



- Bird flu
- Newcastle Disease

7
food-fish
(land-based)
farms



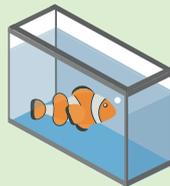
- Chytrid Fungus
- Epizootic Ulcerative Syndrome (EUS)
- Red Seabream Iridovirus (RSIV)

118
food-fish
(coastal)
farms



- EUS
- RSIV

65
ornamental
fish farms



- *Aeromonas Salmonicida*
- Chytrid Fungus
- Epizootic Haematopoietic Necrosis Virus
- Infectious Haematopoietic Necrosis Virus
- Infectious Spleen and Kidney Necrosis Virus
- Koi Herpes Virus
- Megalocytivirus
- Spring Viraemia Carp Virus
- Viral Haemorrhagic Septicaemia
- White Spot Syndrome Virus

Total animal farms

202

▶ MANAGING DISEASES DETECTED IN LOCAL FARMS

In FY 2016, one local poultry farm was detected with *Salmonella Enteritidis*. AVA imposed an isolation order on the affected poultry house. Eggs from the affected poultry house were diverted for heat treatment or pasteurisation to kill the bacteria. The isolation order was lifted after the infected flocks were tested negative after two consecutive rounds of tests.

AVA continued to place three local ruminant farms that tested positive for *Escherichia coli* (E. coli) O157:H7 under isolation order. The farms were advised to treat their livestock with pro-biotics. The milk produced was pasteurised and tested to ensure it was safe for human consumption.



AVA also continued to provide extension and disease diagnostic services to farmers, and work closely with them to improve the management of aquatic health. White Spot Syndrome Virus was detected in one batch of imported shrimps and a batch of locally farmed shrimps. In addition, AVA reviewed the list of banned drugs for food-fish farms in FY 2016 to enhance restrictions on drug use in food-fish farms so as to reduce anti-microbial resistance. The updated list was issued to all food-fish farms.

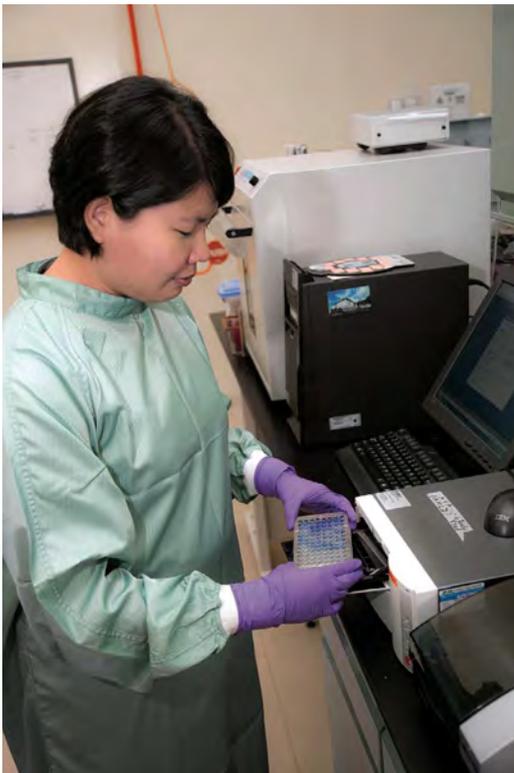


Complying with the Code of Ethics

AVA regulates the veterinary profession in Singapore to ensure that veterinarians comply with the Code of Ethics for Veterinarians and maintain high standards of expertise, integrity, and accountability when providing professional services. In FY 2016, AVA licensed 382 veterinarians and 80 veterinary centres.

ENHANCING LABORATORY CAPABILITIES

AVA's Animal Health Laboratories (AHL) is the national reference laboratory for animal diseases and carries out testing of animal vaccines. In FY 2016, AHL performed about 131,000 laboratory tests to detect and identify diseases in more than 227,000 samples of animals, birds, and fish.



AHL continued to attain the ISO/IEC 17025 accreditation that is administered by the Singapore Accreditation Council – Singapore Laboratory Accreditation Scheme (SAC-SINGLAS). This accreditation reflects the competence of AHL's quality assurance system and its commitment to high laboratory testing standards in the field of chemical and biological testing. In FY 2016, three new tests were accredited by SAC-SINGLAS:

- Detection of *Megalocytivirus* real-time polymerase chain reaction (PCR) assay
- Detection of *Burkholderia mallei* antibodies by Complement Fixation Test
- Multiplex PCR for the Serotyping of *Streptococcus agalactiae*

Volume of tests conducted (FY 2016)

	Samples tested	Laboratory tests performed
Regulatory import	10,362	5,695
Routine surveillance	173,661	95,679
Disease investigation	6,046	8,082
Commercial	37,106	21,919
Inter-lab proficiency testing	175	201
Total	227,350	131,576

Since 2004, AHL has been benchmarking its testing capabilities by participating in several inter-laboratory proficiency testing programmes administered by the Animal & Plant Health Agency (UK), Australian Animal Health Laboratory, as well as the French Agency for Food, Environmental and Occupational Health & Safety. In FY 2016, AVA participated in 24 proficiency testing programmes and achieved 100-percent accurate results.

During the FY, AHL expanded its diagnostic capabilities with the establishment of 13 new testing methods:

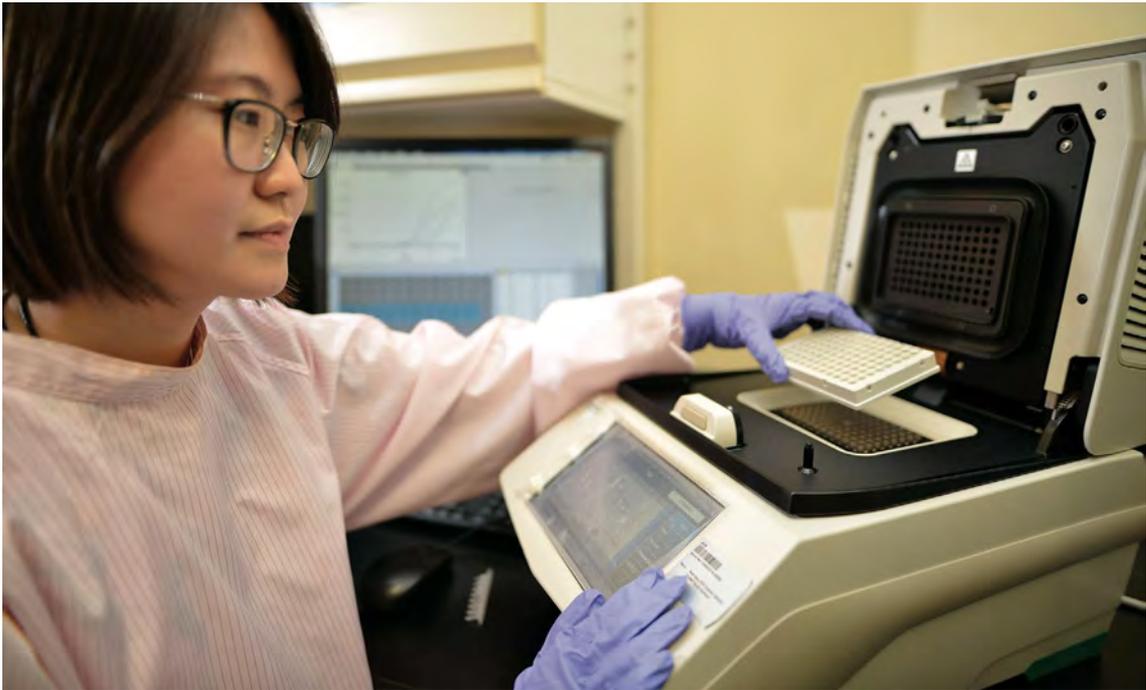
- Transmissible Gastroenteritis (TGE) virus N gene real-time PCR
- TGE S gene differentiation PCR with PRCV
- Porcine Epidemic Diarrhoea Virus N gene real-time PCR
- Porcine Respiratory Reproductive Syndrome Virus real-time PCR
- Classical Swine Fever Virus ELISA
- Poultry 22-multiplex serological assay
- Canine Parvovirus VP2 gene sequencing PCR
- *Burkholderia mallei* Complement Fixation Test
- *Dirofilaria immitis* Microfiltration Test
- Equine Viral Arteritis (EVA) Virus real-time PCR
- Single radical hemolysis test for Equine Influenza Virus
- Detection of *Streptococcus equi* subspecies *equi* by real-time PCR
- Characterisation of *Streptococcus equi* subspecies *equi* by Multi-Locus Sequence Typing

▶ ENHANCING EQUINE LABORATORY DIAGNOSTICS

With the aim to establish AHL as a regional laboratory for equine laboratory diagnostics, the following enhancements were made in FY 2016:

- Established real-time PCR for the detection of *Streptococcus equi* subspecies *equi* (Strangles).
- Established multi-locus sequence typing for advanced pathogen characterisation of Strangles. This allowed the determination of the bacterial strain causing the outbreak, which could help narrow down the country of origin of the strain.
- Established a complement fixation test to detect glanders antibodies in horses.
- Developed single radial haemolysis (SRH) test method for post-equine influenza (EI) vaccination monitoring of antibodies. SRH enables the determination of protection level to different clades of EI so as to inform vaccine choice and timing, in relation to international movement of horses and use of vaccine during an EI outbreak.
- Established conventional PCR to detect *Echinococcus* sp., a zoonotic parasitic disease.

In addition, AVA embarked on collaborative projects with the Irish Equine Centre, Japanese Racing Association, for real-time PCR validation and EI vaccination protocols evaluation.



▶ SUPPORTING DISEASE INVESTIGATION

In FY 2016, AHL provided laboratory testing services to various animal establishments such as farms, zoos, equine clubs, and boarding kennels. We helped detect and diagnose diseases such as:

- Infectious Bursal Disease in poultry.
- White Spot Syndrome Virus in prawns.
- *Batrachochytrium dendrobatidis* in frogs.
- Strangles, melioidosis, and *Echinococcus* in horses.
- *Mycobacterium bovis* in zoo animals.
- Leptospirosis in dogs.

▶ WORKING COLLABORATIVELY

The ASEAN Standard Requirements for Animal Vaccines was first developed to facilitate intra-ASEAN trade in the product. It is also part of ASEAN's efforts to ensure that safe and effective animal vaccines are used in protecting animal health within the region. During the year, AVA contributed actively to the drafting of the third edition of the Standard.

In addition, in FY 2016, AVA embarked on a five-year joint surveillance of local zoo animals for pathogens of interests, with Wildlife Reserves Singapore and Duke-National University of Singapore. We also continued to co-organise the One Health specialist diploma course with Temasek Polytechnic. The diploma will deepen the expertise of officers in public health matters and also enhance collaboration among One Health agencies comprising AVA, the National Environment Agency, and Ministry of Health.

▶ FURTHERING SCIENTIFIC PROGRESS

AVA continued to share knowledge with the scientific community during the FY. Eight AVA scientists published a paper on '*Streptococcus agalactiae* outbreaks in cultured golden pomfret, *Trachinotus blochii* (Lacépède), in Singapore' in the 'Journal of Fish Diseases'.



PROTECTING ANIMAL WELFARE

AVA safeguards the well-being of animals and prevents animal cruelty through enforcement, engagement, and education. We work closely with animal welfare groups in the area of public education and re-homing of animals. In addition, AVA regulates research facilities that use animals for scientific purposes in Singapore, to ensure they comply with guidelines on the care and use of these animals.

► RAISING ANIMAL WELFARE STANDARDS

In FY 2016, AVA continued to strengthen its animal welfare regulatory regime, and raise animal welfare standards in Singapore. AVA's Code of Animal Welfare (for the Pet Industry) took effect on 1 October 2016. This Code was formulated by the Multi-Stakeholder Collaboration Committee for Animal Welfare comprising members from the veterinary profession, animal welfare groups, the pet industry association, and grassroots leaders. With a focus on animal housing, management, and care, the Code sets the minimum standards that businesses are expected to comply with, and best practices that they are encouraged to adopt. Failure to meet the minimum standards in the Code can be used as evidence to support prosecution for animal welfare offences.



During the FY, AVA revised the licensing conditions for pet shops and farms to tighten existing regulations and raise animal welfare standards in Singapore. The changes were made to improve the housing and management of animals, enhance traceability of animals and accountability of pet businesses, and improve healthcare. These revisions were finalised following consultation with stakeholders such as pet businesses, animal welfare groups, and the Pets Enterprises & Traders Association, Singapore (PETAS). The revised licensing conditions will take effect from 1 April 2017.

► LICENSING OF PET SHOPS AND DOGS

AVA licenses and inspects pet shops to ensure compliance with licensing conditions and standards of care for animals. Pet shops are also graded, so that the public is informed of the standards of the pet shops they patronise. In addition, as dogs are the main host and transmitter of rabies, AVA licenses pet dogs to facilitate contact tracing in the event of an outbreak. Dog licensing also establishes accountability for the care and management of dogs by pet owners.

Licensing and grading of pet shops (FY 2016)



Licensing of pet dogs (FY 2016)



On 1 March 2017, revisions were made to AVA's Animals and Birds (Dog Licensing and Control) Rules, such that all dogs intended for sale by pet businesses must be licensed before they are sold. Dog owners are also required to update changes to the ownership details of their dogs when the dogs are sold or given away. Individual dog licensees who sell or give away their dogs are to inform AVA that they are no longer keeping the animals. These revisions will improve the traceability of pet dogs in Singapore, especially in the event of a disease outbreak such as rabies. The revisions will also discourage pet abandonment and help AVA to reunite lost dogs with their owners.

▶ ENFORCING AGAINST ANIMAL CRUELTY

AVA actively investigates all alleged animal cruelty cases. Where necessary, we work with the relevant agencies and animal welfare groups on these cases. AVA takes enforcement action against anyone who has committed an act of animal cruelty. Anyone found guilty of animal cruelty can be fined up to \$15,000 and/or jailed up to 18 months, or both for the first offence. For second and subsequent offences, the maximum penalty is \$30,000 or a jail term of up to three years, or both.

In FY 2016, three Singaporeans were found guilty of animal cruelty. One man was sentenced to 18 months' probation for throwing a cat down from level 13 of a flat. Another man was fined \$8,000 for physically abusing one of his pet dogs, and for failing to comply with dog licensing and control rules by keeping more than three dogs at his premises. Lastly, the court sentenced a man to 18 weeks' jail for two counts of animal cruelty, which included throwing a cat down from the 10th floor of a flat and slamming it on the ground floor.

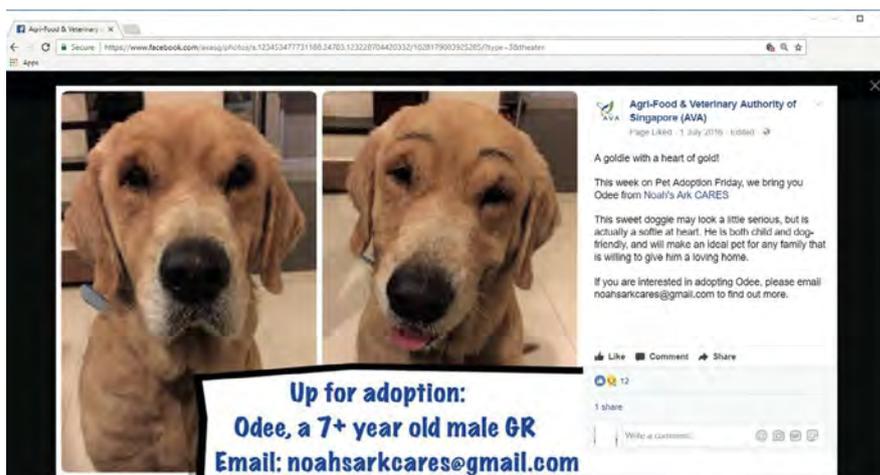
▶ ENGAGING WITH THE PUBLIC

Through a series of outreach activities under our Responsible Pet Ownership (RPO) programme, we not only encourage existing pet owners to be responsible, but also urge potential pet owners to consider adoption as the first option, through our collaboration with 12 animal welfare groups in the re-homing of stray dogs.



AVA's RPO event was held from 5-11 December 2016 in the heartlands at Waterway Point mall. Themed 'Happy Pets Happy Hood', the week-long event featured a walk-through exhibition, edu-taining stage performances, and outreach booths set up by 10 animal welfare groups. Altogether, the event attracted over 12,000 visitors. In conjunction with the event, AVA and the Cat Welfare Society also co-sponsored the charity movie screening of 'Street Cat Named Bob'.

In addition, AVA supported four adoption drives organised by Exclusively Mongrels in FY 2016. We also supported our re-homing partners by helping to spread the message of 'consider adoption first'. In an ongoing Facebook campaign, AVA continued to feature the profiles of two animals that are up for adoption every Friday.



Our re-homing partners were:

- Action for Singapore Dogs
- Agency for Animal Welfare
- Animal Lovers League
- Cat Welfare Society (CWS)
- Causes for Animals Singapore
- Exclusively Mongrels
- House Rabbit Society Singapore
- Humane Society (Singapore)
- MercyLight
- Noah's Ark CARES
- Purely Adoptions
- SOSD Singapore
- Society for the Prevention of Cruelty to Animals (SPCA)
- Voices For Animals

To promote the importance of routine veterinary pet care and preventive pet care, AVA continued to organise Free Pet Health Checks for pet owners. During the FY, Free Pet Health Checks were conducted on 18-19 June 2016 in conjunction with the grand opening of SPCA at its new premises, as well as on 10-11 December 2016 during AVA's 'Happy Pets Happy 'Hood' event. The health check services were provided by licensed vet volunteers from private clinics.

AVA also took part in other outreach events in Beo Crescent and Compassvale on 19 November 2016 and 4 March 2017, respectively, to educate residents on the negative effects of pigeon feeding and importance of RPO. On 15 July 2016 in Punggol, we partnered with SOSD Singapore in teaching residents how to appropriately react when they encounter stray dogs.



We believe that education can bring about long-term, positive changes. In FY 2016, we continued to engage with children through school talks and learning journeys. In addition, we rolled out 'hot-seat' classroom sessions whereby students can pose any pet-related questions to the speaker. Furthermore, RPO messages were incorporated into the Character and Citizenship curriculum for all Primary 4 pupils. These initiatives reached out to more than 57,000 students. AVA also took part in the Early Childhood & Development Agency's Start Small Dream Big event in FY 2016 and reached out to over 22,000 students.





MANAGING ANIMAL-RELATED ISSUES

In managing animal-related issues, AVA has to balance the diverse interests of different stakeholder groups. Our animal control measures are multi-pronged, and include efforts such as research, education, partnership with animal welfare groups, animal control, and re-homing of impounded dogs.

▶ MOVING INTO THE NEW ANIMAL MANAGEMENT CENTRE

The former Centre for Animal Welfare and Control at Pasir Panjang was relocated to the new Animal Management Centre (AMC) in Sungei Tengah on 13 March 2017. The new four-storey building comprises offices and amenities such as an animal holding area and quarantine area. AMC also has an expanded exercise yard for dogs, an area for the public to claim lost pets, and an education centre for outreach activities.

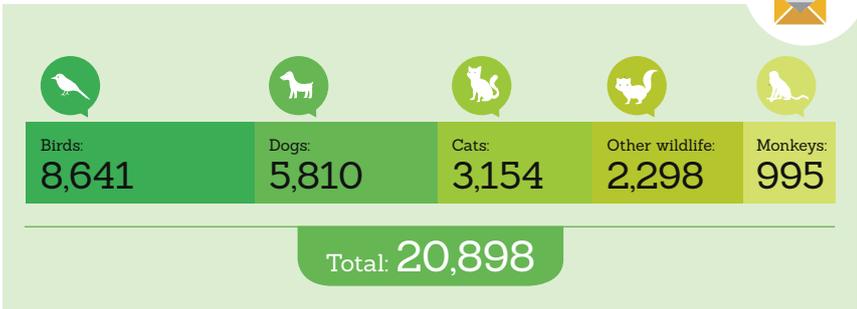
▶ PLAYING OUR ROLE AS FIRST RESPONDER

AVA continued to manage animal-related feedback in our role as First Responder. Animal-related issues are often complex, and require the efforts of various agencies to achieve an effective resolution. AVA leads the coordination among relevant agencies for swift follow-up actions.

In FY 2016, we received several awards for providing excellent service in resolving animal-related issues. In recognition of good municipal and customer service delivery, AVA was awarded the PS21 Distinguished Team Award and PS21 Team Award in May 2016 for our display of teamwork and effective inter-agency coordination in handling and managing wild animal issues. An AVA officer also received the PS21 Star Service Award in recognition of his work.

On 30 September 2016, we were presented with four Municipal Services Team Awards for providing systemic and citizen-centric improvements to animal-related services through inter-agency collaborations. These awards recognised our efforts in animal rescue services, a stray dog analytical study jointly conducted by AVA and the Municipal Services Office, the management of crows and egrets at Maju Avenue, and the production of a municipal reference guide.

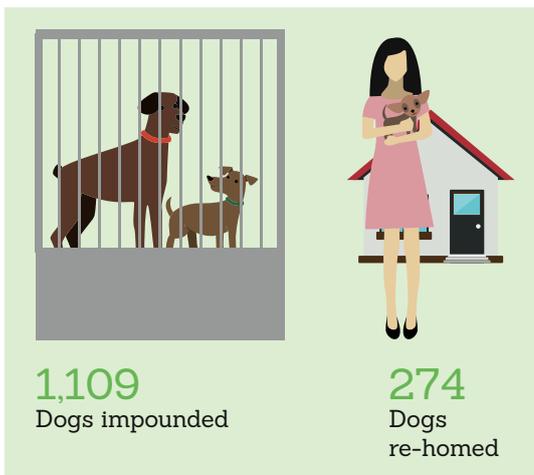
Volume of animal-related feedback handled (FY 2016)



▶ ENHANCING STRAY DOG POPULATION CONTROL MEASURES

In November 2015, AVA engaged the University of Queensland to conduct a three-year study on the stray dog population in Singapore. Through a science-based approach, the study will help us establish a better estimation of the stray dog population in Singapore, obtain clear scientific understanding of its underlying dynamics and ecology, and enhance our contingency planning for rabies outbreaks. In FY 2016, initial population estimates at study sites were acquired and replicates of the surveys are ongoing to establish statistical significance.

Number of dogs impounded and re-homed (FY 2016)



Recognising our stray dog re-homing partners

AVA works closely with animal welfare groups (AWG) in co-solutioning and co-managing animal related issues. The year 2016 marked AVA's 5th year of collaboration with its dog re-homing partners, which have grown from only five in 2011 to a total of 12 partners. In recognition of their efforts and contributions, Minister in the Prime Minister's Office and Second Minister for National Development & Home Affairs, Mr Desmond Lee, presented plaques of appreciation to our re-homing partners in October 2016 during an AVA-AWG engagement session.



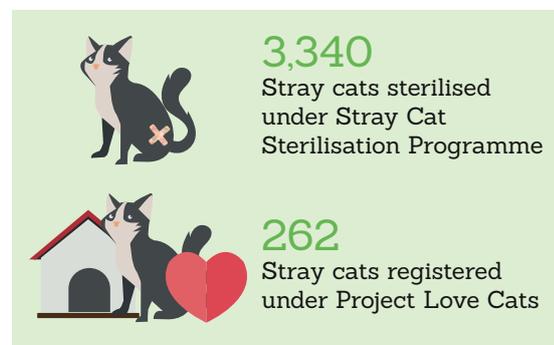
▶ MANAGING STRAY CATS

In 2011, AVA piloted a Stray Cat Sterilisation Programme in collaboration with CWS and four town councils, to sterilise community cats, mitigate nuisances such as caterwauling, and ensure that they are properly managed by appointed caregivers. Under this programme, AVA funds 50 percent (up to \$30 for male cats and \$60 for female cats) and \$20 for sterilisation and microchipping costs, respectively. As at 31 March 2017, more than 500 volunteers had registered themselves as caregivers and 3,340 stray cats were sterilised under the programme.



Stray cat sterilisation and re-homing programmes (FY 2016)

Project Love Cats, led by CWS with the support of local Member of Parliament, Mr K Shanmugam, debuted in Chong Pang in October 2012. As of December 2016, there were 115 Housing & Development Board (HDB) households owning a total of 262 cats under this project. AVA, along with HDB, Sembawang-Nee Soon Town Council, and the Ministry of National Development continues to lend their support to Project Love Cats.



▶ STUDYING NEW BIRD CONTROL METHODS

AVA continuously looks for innovative solutions to manage and control bird populations in Singapore. In this FY, AVA continued with its two-year research collaboration with the National University of Singapore to study the population and ecology of crows, pigeons, swallows, Asian Koels, and chickens. Data obtained will enable us to formulate animal management approaches that are based on scientific findings.

In another trial that ran from October 2015 to 2016, an oral contraceptive was added to bird feed as a method to manage the pigeon population along Palmer Road. Since the conclusion of the trial in October 2016, AVA observed a 60- to 70-percent reduction in the number of pigeons in that area. In September 2016, we embarked on another year-long trial using the same feed to manage the pigeon population along Waterloo Street. This trial will also test if the level of human traffic, which is closely linked to the amount of food sources for the birds, would affect the effectiveness of the feed.

In November 2016, AVA tested the effectiveness of Methyl Antranilate (MA) in deterring mynahs in Clementi. Selected trees were fogged with a chemical containing MA, which is an extract from grapes and acts as a sensory repellent. We found the method less effective than desired, and are currently looking into other methods to control the population of mynahs in Singapore.





Plant Health

Healthy plants positively impact our city's landscape and crop yields. With our expertise in disease investigation and pest diagnosis, the greenery and crops that you love will always be in safe hands.



SAFEGUARDING PLANT HEALTH

AVA protects plants in Singapore's farms, nurseries, and lush cityscape from exotic and emerging indigenous pests that may cause significant economic losses. Our plant health regulatory system of surveillance, inspection, risk analysis, and laboratory testing is globally recognised. Through close partnership with local government agencies and the industry, we have continued to keep the Khapra beetle (stored product pest), Mediterranean and Queensland fruit flies, as well as South American Leaf Blight (SALB), away from our shores.

KEEPING OUT PLANT PESTS

AVA regulates the import of plants and plant products. Plants and plant products entering Singapore must meet AVA's plant health import requirements. A permit is required and AVA conducts post-entry inspections to ensure compliance. In addition, as part of our monitoring efforts on quarantine pests, surveillance visits are conducted and samples are collected for laboratory analysis.

As part of our surveillance in FY 2016, we collected 286 samples comprising fruits and cut flowers imported from the South American Tropics, where SALB, a fungal disease of rubber, is endemic. These samples also included pheromone traps for the survey of Queensland and Mediterranean fruit flies. Results showed no presence of the SALB or fruit flies.

During our surveillance in FY 2015, *Aphelenchoides fragariae*, a quarantine nematode, was detected in imported plants. To determine if this quarantine pest was associated with imported ornamental plants, we collected 264 tissue samples and 121 growing medium samples from 52 hosts between November 2015 and December 2016. Results showed no presence of the *Aphelenchoides fragariae*.

Control and surveillance of imported plants (FY 2016)



39,132
Import
permits
issued



3,074
Post-entry
inspections
conducted



1,107
Samples
tested

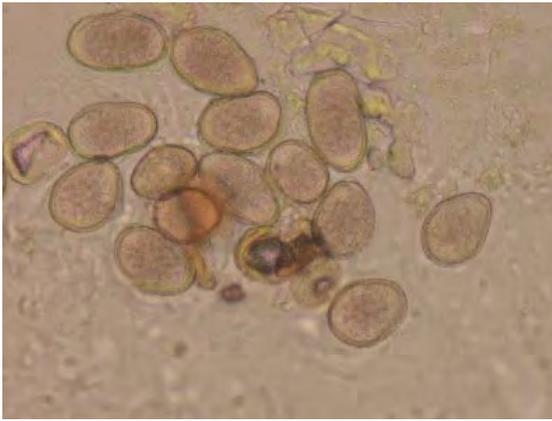
In FY 2016, we continued to suspend two Malaysian nurseries from exporting plants to Singapore, as the quarantine pest *Chrysomphalus aonidum* was still found during our audit. AVA has been working with the Department of Agriculture (DOA), Malaysia, to ensure that the nurseries are free from the quarantine pest before they can be allowed to export to Singapore. From 13 to 15 February 2017, a training workshop was conducted to enhance DOA officers' skills in diagnosing *Chrysomphalus aonidum* during their inspections.



DETECTING AND MONITORING NEW PESTS

In FY 2016, we detected a total of 11 new pests through our surveillance programmes. Some of these were first reports of pests in certain host plants while others were detected for the first time in Singapore. Among these 11 pests, the *Chrysomphalus aonidum* and *Aphelenchoides fragariae* were eradicated, and the *Prospodium appendiculatum* was considered to be of low-risk as its damage was limited to only one host plant – *Tecoma stans* (Yellow trumpet bush). We will continue to monitor all the other pests and determine the potential impacts and mitigation measures required.

New pests	Plant hosts
<i>Rusostigma</i> species	<i>Syzygium</i> species and <i>Eugenia</i> species (Flowering shrubs)
<i>Thysanococcus</i> species	<i>Pandanus</i> species (Pandanus) and Palms
<i>Gynaikothrips</i> species	<i>Ficus benjamina</i> (Weeping fig/Ficus tree)
<i>Ceroplastes ceriferus</i>	<i>Podocarpus</i> (Conifers) and <i>Ixora</i> (Flowering shrub)
<i>Pinnaspis buxi</i>	Coconut palms
<i>Protopulvinaria longivalvata</i>	<i>Tabernaemontana</i> species (Flowering shrub/tree)
<i>Chrysomphalus aonidum</i>	<i>Agathis borneensis</i> (Conifer – Malaysian Kauri)
<i>Aphelenchoides fragariae</i>	<i>Medinilla</i> species (Evergreen shrubs/lianas)
<i>Austropuccinia psidii</i>	<i>Rhodomyrtus tomentosa</i> (Myrtaceae family)
<i>Prospodium appendiculatum</i>	<i>Tecoma stans</i> (Yellow trumpet bush)
<i>Cerotelium fici</i>	<i>Ficus religiosa</i> and <i>Ficus carica</i> (Family Moraceae)



Uredinia of Prospodium appendiculatum



C. ceriferus on the twig of podocarpus sp



Aphelenchoides fragariae



Rusostigma sp. on *Eugenia grandis*

KEEPING ABREAST OF INTERNATIONAL DEVELOPMENTS

Singapore is a signatory to the International Plant Protection Convention (IPPC), an international plant health agreement that aims to protect cultivated and wild plants by preventing the introduction and spread of pests. IPPC develops International Standards for Phytosanitary Measures (ISPMs) that safeguard plant resources. Member countries review the draft ISPMs before the standards are finalised, and are expected to produce national pest status reports based on survey data. During the FY, AVA submitted one report on our status of freedom from the SALB pathogen (*Microcyclus ulei*); 10 pest status updates; as well as three notification reports on the interception of *Chrysomphalus aonidum*.

HELPING LOCAL FARMERS MANAGE PESTS

AVA monitors establishments involved in the commercial cultivation of plants, flowers, and vegetables to keep them free from targeted quarantine pests and new pest incursions. Under AVA's vigilant watch, pests are detected and controlled in a timely manner.

In FY 2016, AVA provided pheromone lures, along with the lure formulation and sources of various components, to local farms to help them tackle the escalating populations of Diamondback Moths (DBM). Most of them found the lures effective in successfully managing the pest. AVA also trained farm staff on the preparation of DBM lures using ingredients that the farms had purchased. Emphasis was placed on the precautions to take and quality control of these lures. Such knowledge would enable farms to prepare their own DBM lures for monitoring and management of the DBM.



We also helped to manage wilt disease in two local vegetables farms. In both farms, the causes for wilt were identified and advice on control methods were provided. In addition, we worked with an orchid nursery to tackle algae growth and investigated complaints of high rates of disease incidences in farms. To further equip vegetable farms with pest management skills, AVA conducted a seminar on Integrated Pest Management on 12 December 2016.

Besides assisting farms, AVA conducted 10 site visits to various residential and tourist attractions to diagnose plant health problems during the FY. Pest situations in these premises improved after following AVA's advisories.

To ensure food, environmental, and workers' safety, AVA registers and approves all agricultural pesticides for use in vegetable and ornamental plant farms. During the FY, 326 pesticide products were approved for agricultural use. AVA also certifies pesticide operators who supervise the application of approved pesticides in the farms. There were 167 AVA-certified pesticide operators at end of FY 2016. In addition, Pesticide Operator Certification (POC) training and proficiency tests were conducted for certification of pesticide operators. Four training courses (in English and Chinese language) were conducted in June and December 2016 for existing and new POC applicants.

ENHANCING LABORATORY CAPABILITIES

AVA's Plant Health Laboratory (PHL) serves as the national authority for plant health, providing analytical and diagnostic services on plant health in Singapore. In FY 2016, PHL performed close to 20,000 tests and processed more than 9,000 samples.

PHL's work is underpinned by a commitment to benchmark our systems against ISO/IEC 17025:2005 standards since 2005. During the FY, the following three new tests in the field of chemical and biological testing were accredited, bringing the total number of accredited tests to 31 under the Singapore Accreditation Council - Singapore Laboratory Accreditation Scheme (SAC-SINGLAS):

- Extraction and Morphological Identification of *Frankliniella Occidentalis* Pergande (Insecta:Thysanoptera: Thripidae) from Orchids and Plant Products
- Extraction and Morphological Identification of *Aphis Gossypii* Glover (Insecta: Hemiptera: Aphididae) from Plants
- Extraction and Morphological Identification of *Chrysomphalus Aonidum* (Linnaeus, 1758) from Host Plants



Volume of tests conducted (FY 2016)

	 Export	 Import	 Surveillance	 Commercial	 Inter-lab Proficiency testing	Total
 Samples tested	360	816	7,081	1,467	8	9,732
 Laboratory tests performed	495	1,364	8,309	8,675	48	18,891

▶ BENCHMARKING AGAINST INTERNATIONAL INTER-LABORATORY PROFICIENCY TESTING PROGRAMMES

PHL continued to benchmark its testing capabilities by participating in the inter-laboratory proficiency (ILP) quality assurance testing programme administered by Wageningen Evaluating Programmes for Analytical Laboratories, the Netherlands. Consistently good performance was achieved in the programme. In FY 2016, AVA also sent samples to external laboratories to verify our identification of new pests and pathogens. Positive confirmations were received.

Pests & pathogens	Confirmed by
<i>Rusostigma</i> Quaintance & Baker	Horticultural Research Laboratory (USA)
<i>Thysanococcus</i> sp. (Halimococcidae) and <i>protopulvinaria longivalvata</i> (Coccidae)	California Department of Food and Agriculture (USA)
<i>Bactrocera dorsalis</i> complex	International Centre for Management of Pest Fruit Flies (Australia)
<i>Coleosporium plumeriae</i> (host: <i>Plumeria</i> species)	Centre for Agriculture and Biosciences International (UK)
<i>Fusarium commune</i> (host: <i>Brassica</i> species)	Centre for Agriculture and Biosciences International (UK)

▶ FACILITATING PEST IDENTIFICATION

During the FY, PHL developed three pictorial keys to facilitate quicker identification of pests. These keys or guides cover scale insects, quarantine fungi, and Myrtle rust:

- Common scale insects on ornamental plants in nurseries of Singapore and West Malaysia.
- 34 quarantine fungi species with images of their morphological characteristics, disease symptoms, and plant hosts.
- 50 commonly found hosts of Myrtle rust (members of the Myrtaceae family) in Singapore.

▶ DEVELOPING NEW TEST METHODS

In FY 2016, new test methods were developed for molecular diagnosis and pest management:

- A molecular protocol for the identification of *Chrysomphalus aonidum*.
- A protocol for the molecular identification of *Aphis gossypii*, *Aphis spiraeicola*, *Neophyllaphis podocarpi*, *Tinocallis kahaluokalani*, and *Lipaphis pseudobrassicae*.
- Molecular techniques for the identification of plant pathogens.
- Specific molecular techniques for the identification of quarantine pests *Xylella fastidiosa*, *Microcyclus ulei* (SALB), and *Austropuccinia psidii*.
- A molecular technique for detecting *Fusarium* sp. from soil.

FURTHERING RESEARCH AND SCIENTIFIC PROGRESS

▶ CONTROLLING WEEVILS IN RICE STOCKPILES

In February 2016, AVA, Ministry of Trade and Industry, International Enterprise Singapore, and Singapore Storage & Warehouse Pte Ltd jointly conducted a study on the efficacy of modified atmosphere packaging (MAP) against that of methyl bromide (MB) fumigation in the control of weevils in rice stockpiles. Results showed that both MAP and MB were effective for the control of adult weevils. However, MB was more effective than MAP in controlling the pupae, larvae, and eggs of rice weevils.

▶ CONTROLLING CATERPILLARS ON RAINTREES

In a collaborative project with Syngenta Asia Pacific Pte Ltd and Ang Mo Kio Town Council, AVA found Emamectin-benzoate (EMA) more effective than Thiamethoxam (TMX) in controlling populations of caterpillars on raintrees. EMA is also a more environment-friendly option – it is a product isolated from fermentation of a naturally occurring soil bacteria, while TMX is a chemical derivative. Following AVA's recommendation, Ang Mo Kio Town Council has begun using EMA to control the populations of caterpillars on the raintrees in its estate.



▶ STUDYING THE EFFICACY OF ELECTRIC SOIL STERILISATION

AVA collaborated with a local vegetable farm to investigate the efficacy of electric sterilisation in eradicating microbial load and disease pathogens in soil. Significant correlation was established between the reduction in microbial load and a prolonged duration of current passing through the soil. Although an overall decrease in microbial load was observed, the treatment was not effective in completely eradicating all microbial load.

▶ SHARING RESEARCH FINDINGS WITH SCIENTIFIC COMMUNITY

AVA contributes to scientific publications to share our research findings with the international scientific community. In FY 2016, our scientists published three papers in journals titled '*Plant Disease*' and '*Journal of Biocontrol*':

- First report of *Austropuccinia psidii* on *Rhodomyrtus tomentosa* (Myrtaceae) from Singapore
- Field evaluation of *Trichoderma* spp. as a biological control agent to prevent wood decay on Benin mahogany (*Khaya grandifoliola*) and rain tree (*Samanea saman*) in Singapore
- In-vitro evaluation of antagonism by *Trichoderma* spp. towards *Phellinus noxius* associated with rain tree (*Samanea saman*) and Senegal mahogany (*Khaya senegalensis*) in Singapore

We were also invited by the Thailand Institute of Science and Technological Research to speak about soil quality management and assessment in organic agriculture, at the ASEAN+6 Organic Agriculture Forum held in Chiang Mai, Thailand from 28 to 30 June 2016.

CULTIVATING GOOD SOIL FOR HEALTHY PLANTS



In FY 2016, AVA continued to collaborate with ASEAN partners to improve soil health management. AVA co-chaired the ASEAN Expert Group Meetings on Soil and Nutrient Management under the ASEAN Sustainable Agrifood Systems. The final draft of the ASEAN guidelines for soil and nutrient management was presented at the 8th Steering Committee Meeting of the ASEAN Sustainable Agrifood Systems in December 2016.

Composts are commonly used in landscaping and farming to improve soil properties and provide better nutrition for plants. Proper composting and minimum standards for composts are required to ensure plant health. A working group comprising SPRING Singapore, AVA, and the National Parks Board (NParks) was formed to develop a national standard that specifies minimum requirements for the physical, chemical, and biological properties of composts.

The standard was undergoing review by working group members, overseas experts, and the public. It was scheduled for launch in June 2017.

Locally, AVA conducts tests to determine levels of organic matter in soil mixes to ensure that the soil used by the landscaping industry meets specifications required by NParks. From the sample tests conducted in FY 2016, we observed that 35 percent of the soil mixes had pH levels outside the acceptable range. The organic matter level was also found to be lower than the specified limit in 70 percent of samples tested. The Cation Exchange Capacity, a soil property that helps to retain certain nutrients, was noted to be lower than the specified limit in nearly 50 percent of samples. Recommendations were provided for remedial actions.





Agrotechnology

We lend a helping hand to local farmers in adopting innovative and automated systems that improve productivity. With more home-grown produce available for you, Singapore will also enjoy greater self-sufficiency and security in food.



HARNESSING TECHNOLOGY AND INNOVATION FOR INTENSIVE FARMING

Most of the food we eat comes from overseas. Economic, political, and climate changes as well as disease outbreaks in the countries we import from can cause uncertainties in our food supply. As such, Singapore must be able to produce some food itself. With limited farming space available, there is an urgent need to harness technologies and innovations to produce more food with less space and manpower. Our future in food security lies in a modern and technologically savvy farm sector that is driven by agricultural professionals.

AVA is committed to helping the agri-food industry intensify production, extend the shelf-life of food products, and minimise food waste. Our scientists and technologists are constantly researching on technologies that suit the needs of local agri-food companies, helping them adopt intensive and innovative production methods. We also work with the private sector to co-develop solutions and test-bed technologies that can help to overcome the constraints of limited resources in Singapore. Our collective efforts are paving the way for Singapore to become a living technological laboratory for urban food production.

Farms in Singapore (FY 2016)



65
Ornamental fish
(breeding /export)



3
Captive bird



32
Dog (breeding, boarding or commercial pet boarding)



2
Aquatic plants



73
Orchid and ornamental plants



1
Others (research)

AQUACULTURE

▶ PRODUCING FASTER-GROWING DISEASE-RESISTANT ASIAN SEABASS

The Asian Seabass is one of the most commonly farmed species in Singapore, accounting for about 14 percent of our total fish production. Since 2009, AVA and Temasek Life Sciences Laboratory have been working together to breed superior lines of the Asian Seabass (*Lates calcarifer*), so that the farmers can rear healthier and faster-growing stock.

In 2014, we successfully enhanced the growth rates of the Asian Seabass by 30 percent. Following that, in FY 2016, we further improved the growth rate of the Asian seabass, and developed lines that demonstrated greater omega-3 fatty acid content and resistance towards diseases. A composite breed that combines both fast-growing and disease-resistant traits has been established and work is underway to commercialise it.



A proper vaccination programme can also raise fish survival rates and farm production. During the FY, AVA's Marine Aquaculture Centre worked closely with a local vaccine company to conduct safety tests and efficacy evaluations on autogenous vaccines. Several autogenous vaccines for the Asian seabass were developed, including a vaccine for the highly fatal Scale Drop Disease Virus.



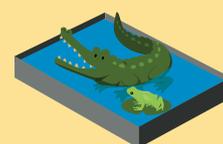
2
Quail (eggs)



3
Layer
(hen eggs)



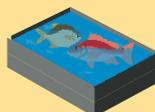
4
Dairy cattle
and goat



3
Frog and
crocodile



7
Food fish
(land-based)



118
Food fish
(coastal)



1
Shrimp



1
Crab



62
Vegetable



6
Beansprout



3
Food crop



1
Aquaponics

Total: **387**

▶ REDUCING RELIANCE ON IMPORTED FISH FRY

Many local fish farms import fry to be grown locally, and are hence susceptible to supply fluctuations. During the FY, AVA transferred the technology of spawning the Cobia (*Rachycentron canadum*) to a local farmer. Cobia is a fast-growing fish that can reach up to 7kg within one year of culture. We are currently helping to improve the fish egg's quality and fertilisation rate. Working with another local farm, we also successfully bred and developed the fry production protocol for the Jade Perch (*Scortum barcoo*), a freshwater fish that is rich in omega-3 fatty acid.



▶ ENCOURAGING THE ADOPTION OF CLOSED CONTAINMENT AQUACULTURE SYSTEMS

Closed containment aquaculture systems (CCAS), including the recirculating aquaculture system (RAS), are effective production methods that mitigate the adverse impact of environmental conditions. In FY 2016, we conducted three workshops on CCAS and farm contingency planning. Technical advice was also provided to help farmers design and optimise their RAS and aquaculture water treatment systems.



Dr Koh Poh Koon engages with local farmers



Senior Minister of State (SMS) for National Development and Trade & Industry, Dr Koh Poh Koon visited 34 local coastal fish, ornamental fish, poultry, livestock, vegetable, and beansprout farms during the FY. During his engagement with farmers, Dr Koh learned more about the operations at various farms, as well as their keenness to test new techniques that can help improve productivity and mitigate the negative impact of climate change. Together with AVA officers, he also assured farmers that the government will help them in adopting technologies to become more productive.

HORTICULTURE

▶ TEST-BEDDING INDOOR AND VERTICAL FARMING SYSTEMS

AVA has been researching on and test-bedding various indoor and vertical vegetable farming systems that not only increase output and space efficiency, but also require lesser manpower and energy. Our research findings are regularly shared with farmers and technical assistance is provided to help farms in the set-up of new systems.

During the FY, we developed indoor multi-tier planting systems for the production of seedlings, baby leaves, and mature plants for common brassicas vegetables such as *xiao bai cai*, *gai lan*, and *nai bai*. Grown in a multiple-tiered shelf that uses low-cost fluorescent lighting, productivity increased by up to fivefold. In addition, time taken for transplanting and water usage were reduced by at least 20 percent and 90 percent, respectively. Efforts are underway to test the use of energy-efficient LED lights in this system. At the same time, the indoor multi-tier planting system is currently being test-bedded at local farms, along with studies on the use of greenhouses, other vegetable varieties, and automation.



▶ IDENTIFYING DROUGHT-RESISTANT *XIAO BAI CAI*

For many conventional soil farms, dry seasons and low rainfalls can lead to decreased yield and increased water consumption. By choosing drought-resistant subspecies of vegetables to grow, farmers can lessen the impact of hot weather on productivity. In FY 2016, AVA studied the yield performance of 10 different cultivars of *xiao bai cai* (*Brassica rapa* subsp. *chinensis*) in water-withholding and drip-irrigation trials. Four out of the 10 cultivars were found to be more tolerant of the trial conditions. These drought-tolerant *xiao bai cai* cultivars were introduced to farms.



▶ LEARNING OPPORTUNITIES FOR VEGETABLE FARMERS

During the FY, AVA conducted various activities to deepen the industry's knowledge and understanding of vegetable farming technologies.

18-23
Jul 2016



AVA organised a study trip to Japan, which is a pioneer in the field of indoor farming. A delegation of farmers, government officials, and academia, led by SMS Dr Koh Poh Koon, learned about the relevant technologies used in Japan, as well as its efforts in promoting indoor farming. Upon AVA's return from the trip, key learning points were shared with 55 local farmers.

8 Nov
2016

AVA and the Economic Development Board co-organised a networking session that linked farmers up with horticultural technology solution providers, vegetable retailers, and agri-business investors.



16 Nov
2016

A technology demonstration on AVA's indoor multi-tier planting system was held. Farmers expressed interest in integrating the system with solar panels, rainwater harvesters, soilless growing mediums, and other forms of automation to reduce the need for electricity, water, soil, and manpower. Studies on these features are currently ongoing.

12 Dec
2016

AVA organised a technical seminar to equip farmers with knowledge on advanced greenhouse design, fertigation (a method that combines fertilisation and irrigation) for soilless culture, and pest management.

24-25
Jan 2017

AVA presented a keynote paper on indoor farming, during Indoor Ag-Con Asia 2017, to a conference audience comprising farmers, solution providers, academia, consultants, and investors.

POST-HARVEST

▶ CHILLING AND FREEZING OF FISH AND EGGS USING ELECTROSTATICS

AVA collaborated with industry partners to assess the effectiveness of electrostatic chilling and freezing techniques on food fish and egg products. Trials were jointly conducted with industry members, and we successfully helped them to extend product shelf-life and quality.

Trial results showed that the electrostatic technique was effective in prolonging the shelf-life of tilapia fish to 10 days, as compared to seven days by conventional methods. However, when this technique was tested on pasteurised liquid eggs, the shelf-life was the same as that achieved by conventional methods (49 days). In addition, the electrostatic technique of chilling and freezing was found to be effective in retaining fish freshness and reducing drip loss (the loss of tissue juices during thawing). For pasteurised liquid eggs, we observed less gelation and lumping of the yolks.



▶ PACKAGING POULTRY USING POLYMER COMPOSITE MATERIAL

AVA and two research partners completed a study on the effectiveness of a polymer composite packaging material in extending the shelf-life of chilled poultry.

The Institute of Materials Research and Engineering developed the novel food polymer composite packaging material. AVA found that the packaging material, on its own, retained higher oxygen and moisture barrier properties, as compared to normal plastic film and conventional modified atmosphere packaging (MAP) film. When coupled with MAP, it is capable of extending the shelf-life of chilled chicken breast meat from three to seven days.

Following this, Piaget Chemicals & Manufacturing Pte Ltd is refining the novel packaging film according to market and regulatory requirements before commercialising it.

▶ RECYCLING BY-PRODUCTS OF MULLET

In 2016, mullets accounted for close to 12 percent of our total fish production. Mullets have high edible fat tissue content and omega-3 fatty acids, which constitute about 20 percent of the whole mullet. Traditionally, these tissues are trimmed away and discarded. AVA developed a range of value-added products from these underutilised tissues, which can be used to replace or supplement the use of fat in some food products. On 20 May 2016, our product concepts were presented during a workshop conducted to encourage local fish farmers to minimise food waste and add value to their produce.

▶ INDUSTRY SEMINARS ON POST-HARVEST TECHNOLOGIES

AVA organised two seminars on food preservation and food loss reduction during the FY:

29 Mar
2017

▶ Non-thermal food processing technology seminar

Heat-dependent food preservation methods such as pasteurisation and sterilisation may adversely affect the appearance, taste, and nutritional value of some food products. In a seminar organised by AVA, non-thermal processing methods such as high pressure, pulse electric field, and UV/LED were presented as viable alternatives that preserve product quality without compromising food safety.



24-25
Aug 2016

▶ Seminar on cold chain and packing technologies for vegetables

AVA invited Japanese experts from the National Agriculture and Food Research Organisation to shed light on fresh produce packaging technologies and cold chain systems.

REACHING OUT TO THE COMMUNITY

▶ LEARNING JOURNEYS TO MARINE AQUACULTURE CENTRE

Over 200 students, teachers, and members of the public visited AVA's Marine Aquaculture Centre in FY 2016 to learn about our R&D efforts and techniques that make the large-scale production of food fish possible.

▶ MASTERGROWER PROGRAMME

The MasterGrower programme imparts vegetable growing skills to volunteers who will in turn share what they learnt with other community gardeners. Through the programme, AVA cultivates an appreciation for the efforts of local farms and raise awareness of food wastage.

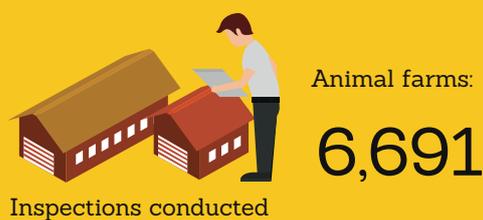
Under this programme, AVA conducted fortnightly classes from 3 September to 8 October 2016. With coaching from AVA, avid community gardeners of Sembawang GRC and students of Spectra Secondary School grew more than 150kg of vegetables, which were harvested and served as part of a luncheon during the 'From Garden to Plate' event on 7 August 2016. More than 200 low-income residents also received meals cooked using these vegetables. In addition, we began collaborating with National Parks Board to hold the MasterGrower programme at HortPark to reach out to more community gardeners.



Ensuring proper and efficient use of farm space

AVA conducts surveillance, inspection, and where required, enforcement actions on farm licensees, to ensure they comply with our regulations and conditions of lease.

Inspections and enforcements related to licensing conditions (FY 2016)







Agri-trade

While we strengthen international partnerships that facilitate the trading of agriculture and food, we also keep a firm hand on illegal wildlife trade. Our extensive network of global connections helps to bring you a diverse and resilient supply of agricultural products.



FACILITATING AGRI-TRADE

AVA facilitates agri-trade and maintains close ties with the international community. At the same time, we regulate the import and export of endangered plants and animals.

FACILITATING IMPORTS

▶ MANAGING JURONG AND SENOKO FISHERY PORTS

AVA manages the Jurong and Senoko fishery ports, which serve as wholesale and distribution centres for both locally produced and imported seafood (live, chilled, and frozen forms) in Singapore. During the FY, Singapore's top five sources of fish were Malaysia, Indonesia, Vietnam, China, and Thailand.



The Jurong Fishery Port (JFP) serves as an international port of call for foreign-flagged fishing and fish carrier vessels. In FY 2016, a total of 2,678 vessel calls were made at JFP. Some 44,590 tonnes of fish from foreign fishing vessels, local fish farms, as well as imports via land and air, were handled during the FY. Of these, 1,891 tonnes were tuna imports meant for re-export.

The Senoko Fishery Port (SFP) continues to serve as the hub for local fishing vessels. In FY 2016, a total of 1,552 vessel calls were made at SFP. Fish merchants operating in SFP handled about 6,087 tonnes of fish from local fishing vessels, local fish farms (via land and sea), as well as from imports.

FACILITATING EXPORTS

AVA facilitates the export of food, plants, animals, ornamental fishes, and their products, by issuing internationally recognised certificates and permits. We also helped to promote Singapore as a food transshipment hub, and contributed to animal conservation efforts.

Permits, licences, and certificates issued (FY 2016)



▶ CONTINUING TO MEET EU'S IMPORT REQUIREMENTS

In FY 2016, AVA's efforts in monitoring, treating, and inspecting aquatic plants for re-export to the European Union (EU) were recognised by the European Commission's Food and Veterinary Office (FVO). These efforts were part of recommendations made by FVO following its audit visit to Singapore in 2012, and allowed Singapore to enjoy continued access to the EU market.

▶ PROMOTING SINGAPORE AS A TRANSHIPMENT HUB

To promote Singapore as a transshipment hub, AVA and International Enterprise (IE) Singapore began collaborating in a pilot project for New Zealand chilled meat to transit in Singapore, en-route to countries in the EU. In April 2016, Singapore was officially authorised by EU as a transit country for chilled meats from New Zealand that are bound for the EU. In November 2016, SATS Coolport in Singapore was appointed as the approved cold-room operator to handle the transit. As the competent authority to supervise the transit, AVA issued the necessary certificates electronically via the EU's TRACES platform to facilitate the export of these meat products to EU member countries. The first consignment of 16 tonnes of chilled lamb meat from New Zealand was successfully transhipped via Singapore to Southampton, UK in January 2017.

REGULATING TRADE IN ENDANGERED SPECIES

As the national authority for implementing and enforcing the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) agreement, AVA works closely with stakeholders to prevent over-exploitation of endangered animals and plants.

In FY 2016, AVA issued a total of 15,831 CITES permits and certificates to regulate the wildlife trade, which comprised mainly reptile skins and reptile manufactured products, Asian arowanas, pet birds, and agarwood. We also facilitated the commercial re-export of wildlife not categorised under CITES, through the issuance of 322 Non-CITES certificates/'B' statements.

In addition, we continued to keep a close watch on the illegal trade of wildlife in Singapore. In FY 2016, AVA investigated 11 cases of illegal imports of the CITES species. Of these cases, one was prosecuted with two offenders being sentenced to six months of jail terms, six were compounded between \$200 and \$3,500, and one was issued a warning letter.



Key smuggling case

On 9 December 2016, Immigration and Checkpoints Authority officers at Changi International Airport found 12 live Chinese Laughing Thrushes (*Canorus garrulax*), a CITES Appendix II bird species, concealed in two luggage bags, which arrived on a flight from Vietnam to Singapore. Our investigations revealed that the birds had been confined for approximately 12 hours in the containers without food or water, which resulted in the death of one of the birds. The travellers were arrested and each sentenced to six months' imprisonment for illegal import and animal cruelty.



▶ COMBATTING SMUGGLING OF IVORY

As the CITES authority in Singapore, AVA has in place legislative and enforcement measures against the illegal trade of wildlife. To combat illegal trading of elephant ivory in particular, AVA adopts a multi-pronged approach that includes regulation, public education, as well as collaboration with enforcement agencies on intelligence sharing and risk profiling.



To send a strong message and raise public awareness of the protection of elephants, on 13 June 2016, AVA crushed and incinerated 7.9 tonnes of seized ivory that were worth about \$13 million. These ivories were seized from four consignments that were smuggled via Singapore between January 2014 and May 2015. By crushing the ivory, we ensured that they could not re-enter the market.

Also, in support of global efforts to curb the illegal trade of ivory and other endangered flora and fauna, Singapore participated in the summit of CITES - 17th meeting of the Conference of the Parties held between 24 September and 5 October 2016. The trade in African elephant and ivory was among key issues discussed. In addition, from 7 to 10 February 2017, the Director-General (Mr Dawud Mume Ali) and Director (Mr Daniel Pawlos Anshebo) of Wildlife Products Trafficking Control from the Ethiopian Wildlife Conservation Authority visited Singapore to understand more about our measures in combatting illegal wildlife trade, and commended our whole-of-government approach in doing so.

▶ CONTRIBUTING TO ANIMAL CONSERVATION EFFORTS

The pygmy hippopotamus is an endangered species with an estimated population of 2,000. Under a conservation breeding programme, AVA assisted Wildlife Reserves Singapore (WRS) in the export of a pygmy hippopotamus to Osaka Aquarium Kaiyukan, Japan. In November 2016, AVA began working closely with Japan's Ministry of Agriculture, Forestry and Fisheries and WRS in negotiating suitable veterinary health conditions for export. We also assisted WRS in achieving the export requirements.



Photo: Wildlife Reserves Singapore

FORGING STRONGER INTERNATIONAL RELATIONS

In FY 2016, AVA continued to participate actively in bilateral, regional, and international meetings and forums to discuss cooperation in food security, food safety, fisheries, livestock, crops, and sanitary and phytosanitary measures.

4-8 Apr 2016 (Nha Trang, Vietnam)	▶ 48 th Meeting of Council of the Southeast Asian Fisheries Development Centre
7 Apr 2016 (Moscow, Russia)	▶ 1 st ASEAN-Russian Federation Senior Officials Meeting on Agriculture
5-8 May 2016 (Arequipa, Peru)	▶ APEC Policy Partnership on Food Security Meeting
22-27 May 2016 (Paris, France)	▶ 84 th General Session of the World Assembly of Delegates of the World Organisation for Animal Health (OIE)
3 Jun 2016 (Xi'an, China)	▶ G20 Agriculture Ministers Meeting
3 Aug 2016 (Bangkok, Thailand)	▶ High-Level Consultation on Regional Cooperation in Sustainable Fisheries Development Towards the ASEAN Economic Community: Combating Illegal, Unreported, and Unregulated Fishing and Enhancing the Competitiveness of ASEAN Fish Fishery Products
22-24 Aug 2016 (Palawan, the Philippines)	▶ 37 th Special Senior Officials Meeting (SOM) of ASEAN Ministers on Agriculture and Forestry (AMAF) and Special SOM-15 th AMAF Plus Three meetings
6 Sep 2016 (Maryland, US)	▶ Global Coalition for Regulatory Science Research Executive Committee Meeting
7 Sep 2016 (Maryland, US)	▶ Global Summit on Regulatory Science
9-10 Sep 2016 (Nanning, China)	▶ China-ASEAN Ministerial Meeting on Quality Supervision, Inspection and Quarantine (SPS Cooperation)
24 Sep – 5 Oct 2016 (Johannesburg, South Africa)	▶ 17 th Meeting of the Conference of the Parties to CITES
26-27 Sep 2016 (Piura, Peru)	▶ APEC 4 th Food Security Ministerial Meeting
3-8 Oct 2016 (Singapore)	▶ 38 th Meeting of the AMAF and 16 th Meeting of the AMAF Plus Three, including Preparatory Senior Officials Meetings
17-21 Oct 2016 (Rome, Italy)	▶ 43 rd Session of Food and Agriculture Organisation Committee on World Food Security

8-9 Nov 2016 (Ipoh, Malaysia)	20 th Malaysia-Singapore Bilateral Meeting on Agriculture
17-18 Nov 2016 (Hanoi, Vietnam)	Hanoi Illegal Wildlife Trade Conference
1 Dec 2016 (Berlin, Germany)	1 st G20 Agriculture Deputies Meeting
8 Dec 2016 & 1 Mar 2017 (Hong Kong)	Expert Committee on Food Safety
19 Jan 2017 (Berlin, Germany)	Global Forum for Food and Agriculture Meeting 2 nd G20 Agriculture Deputies Meeting
22 Jan 2017 (Berlin Germany)	G20 Agriculture Ministers Meeting
25-27 Feb 2017 (Nha Trang, Vietnam)	APEC Policy Partnership on Food Security Meeting
9-10 Mar 2017 (Siem Reap, Cambodia)	23 rd OIE Sub-Commission Meeting for FMD in Southeast Asia, China and Mongolia

▶ MEETING OF THE ASEAN MINISTERS ON AGRICULTURE AND FORESTRY (AMAF)

Singapore successfully hosted the 38th Meeting of the AMAF and the 16th Meeting of the AMAF Plus Three (China, Japan, and Republic of Korea), including the Preparatory Senior Officials Meetings, from 3 to 8 October 2016. Under the chairmanship of Minister for National Development Mr Lawrence Wong, AMAF leaders discussed and adopted key performance indicators for the Strategic Plan for ASEAN Cooperation in Food, Agriculture and Forestry (2016 to 2025). ASEAN Agriculture Ministers also endorsed the harmonised standards for various food, agriculture, and forestry products. Recognising the impact of anti-microbial resistance (AMR) of agriculture on public and animal health, food security and safety, the meeting agreed to strengthen regional cooperation in AMR of agriculture.

In addition, AMAF Plus Three ministers noted the various cooperative activities carried out under the nine Strategic Thrusts of the ASEAN Plus Three Cooperation Strategy (APTCS) on Food, Agriculture and Forestry (2011-2015). The ministers also agreed to conduct an assessment on the implementation of APTCS and to formulate a post-2015 Strategy.



▶ COOPERATING WITH MEXICO ON FOOD AND AGRICULTURE

On 10 June 2016, AVA and the Mexican Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food signed a Memorandum of Understanding (MOU), which would pave the way for enhanced cooperation in areas such as agricultural science and technology, agriculture policies and information, food security, and food safety. It also fostered continued dialogues between both agencies so as to strengthen bilateral economic and technical cooperation.

▶ FIGHTING AGAINST ILLEGAL, UNREPORTED AND UNREGULATED (IUU) FISHING

Under an MOU signed between Singapore and the Food and Agriculture Organisation (FAO) of the United Nations in 2015, provisions were made for FAO and AVA to build up Singapore's capabilities in combating IUU fishing through the implementation of relevant port state measures. These measures are internationally recognised as an effective tool to prevent, deter, and eliminate IUU fishing. A 'Singapore-FAO National Capacity Development Workshop on Port State Measures to Combat IUU Fishing' was organised from 13 to 16 June 2016 to provide greater understanding of the legal and operational requirements of the FAO Port State Measures Agreement. It also identified the gaps, measures required to address the gaps, strategies, as well as timelines for the implementation of port state measures in Singapore.



Further signalling our commitment towards combatting IUU fishing, AVA represented Singapore in signing the "Joint ASEAN-SEAFDEC Declaration on Regional Cooperation for Combating IUU Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products" on 3 August 2016.



▶ SUPPORTING REGIONAL DEVELOPMENT IN POST-HARVEST

AVA, as a collaborating centre of the Southeast Asian Fisheries Development Centre (SEAFDEC), promotes the post-harvest technology development of fisheries in the region, by implementing activities under SEAFDEC's Marine Fisheries Research Department programmes. In FY 2016, ASEAN member countries (excluding Cambodia) continued to participate in bio-toxins monitoring surveys. AVA also organised a regional training course to help ASEAN members identify harmful algal bloom species in the region. In addition, pilot trials on the cold chain management of seafood were conducted to identify gaps. Guidelines will then be developed to address these gaps.



Under the Ministry of Foreign Affairs' Singapore-Thailand Third Country Training Programme, AVA conducted a lecture on post-harvest vegetable processing technology in Bangkok on 27 September 2016. This training course was co-organised with Thailand's Kasetsart University and the Thailand International Cooperation Agency, with the objective to impart knowledge on market requirements, quality assurance systems, as well as post-harvest handling and processing technologies for vegetables. Government officials from Cambodia, Laos, Myanmar, and Vietnam attended this lecture.

▶ HOSTING DISTINGUISHED VISITORS

Over the FY, AVA received several foreign dignitaries and overseas officials for exchanges and collaborative work. Many came to learn about our regulatory control and functions, as well as to tour our facilities and centres.

- 13 Apr 2016 ▶ Dr Gyula Budai
Ministerial Commissioner, Ministry of Foreign Affairs and Trade of Hungary
- 18 Apr 2016 ▶ H.E. Seremaia Cavuilati
High Commissioner of the Republic of Fiji to Singapore
- 29 Apr 2016 ▶ H.E. Dmytro Senik
Ambassador of Ukraine to Singapore
- 25 Jul 2016 ▶ H.E. Kenji Shinoda
Ambassador of Japan to Singapore
- 16 Sep 2016 ▶ Mr Xu Li
Vice Mayor of Jilin City Government
- 27 Sep 2016 ▶ Hon. Jaala Pulford
Victorian Government Minister for Agriculture and Minister for Regional Development
- 18 Jan 2017 ▶ H.E. Dorte Bech Vizard
Ambassador of Denmark to Singapore
- 21 Mar 2017 ▶ H.E. Dr Jonathan Austin
High Commissioner of New Zealand to Singapore
- 23 Mar 2017 ▶ Mr Lukasz Holubowski
President of the Agricultural Market Agency of Poland





EX

Excellence

We strive to be the best in
all that we do
We seek lifelong learning and
continuous innovation



Care

We value and nurture our staff.
We care for our
customers, community and
the environment



Integrity

We serve with
professionalism
We treat our customers
fairly and honestly



TEAMWORK

We trust and respect each other
We work as a team
partner our stakeholders
to achieve our goals



Organisational Excellence

Our people are our greatest asset. Hand on heart, we pledge to be public-centric and serve by our values of Excellence, Care, Integrity, and Teamwork.



SHAPING A FUTURE-READY ORGANISATION

The environment that AVA operates in is becoming increasingly dynamic and complex. Globally and within Singapore, we are facing more uncertainties in geopolitical developments, food security, diseases outbreaks, and cyber security. To ensure AVA can continue to fulfil its vision and mission, we need long-term strategies that will prepare us for future challenges.

▶ STRATEGISING FOR THE FUTURE

To build a future-ready organisation, we established more ambitious goals that will chart AVA's long-term strategies in food security, food safety, and animal management. A new Strategic Futures Department (SFD) was formed in February 2017 to drive these strategies. Working with a network of professionals within and beyond AVA, SFD is responsible for identifying and addressing issues relevant to AVA's strategic foresight.

▶ PREPARING FOR EMERGENCIES

Sound business continuity and contingency plans, developed and honed during peacetime, will help us remain operational in times of a crisis or disaster. AVA has in place an emergency preparedness work plan that is continually reviewed and updated to ensure it stays relevant. In the next two years, AVA will be refining the operational details and milestones of its business continuity and contingency plans.

We also conduct annual exercises to test the robustness of our business continuity plans. In FY 2016, the eighth 'Exercise Gallus' was held to test the operational readiness of our new third-party logistics partner in case of an outbreak of bird flu. Another table-top exercise was also carried out to validate our business continuity plans in the event of a flu pandemic. In addition, AVA participated in two whole-of-government crisis management exercises organised by various government agencies.



To equip our officers with appropriate skills in developing effective emergency operations plans, four workshops were introduced between January and April 2017. These workshops covered case studies of our emergency plans for bird flu outbreaks, food supply disruption, and food safety.

▶ MITIGATING THREATS TO CYBER SECURITY

As part of our ongoing defence against cyber threats, in FY 2016, AVA implemented a security feature that only allows authorised devices to access or internal networks. We also continued to adopt measures such as code scanning, as well as penetration and vulnerabilities tests, to enhance our overall ICT security.

In an effort to safeguard government data, ICT networks in the public service will no longer have access to the Internet. To prepare for this change, AVA conducted a series of briefings and focus group discussions to help officers manage the transition. Following this, an Internet WiFi infrastructure was set up and separate Internet surfing devices were deployed within AVA. These efforts will enable AVA to fully implement Internet surfing separation by 8 April 2017.



Looking out and afar

AVA scans the horizon to keep a vigilant watch on international developments that could pose a threat to Singapore's food safety, food supply, animal, plant, and public health. The function also covers issues related to wildlife and fisheries. Being aware of global issues and policy changes increases AVA's operational preparedness for future challenges. This effort also provides AVA sufficient lead-time to assess any perceived risk, conduct necessary checks, and implement the appropriate mitigation measures.



PURSuing ORGANISATIONAL EXCELLENCE

At AVA, we believe in inspiring our people to be the best that they can be. In striving for organisational excellence, we also encourage staff to find new and innovative ways to improve work processes. We continue to invest in developing the skills and competence of our officers so that they are future-ready and well-equipped to perform their duties.

INSPIRING OUR PEOPLE

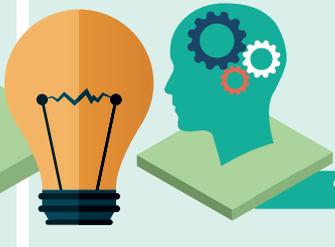
To facilitate bonding within AVA's leadership team, we continued to organise quarterly team building sessions for them. During these sessions, AVA's vision, mission, and values were reinforced through activities that covered topics such as persuasive communications and empathy.



The annual Organisational Excellence Festival (OEF) is a platform for the AVA family to recognise, celebrate, and reinforce the value of excellence in the organisation. Held from 17 to 31 May 2016 in conjunction with Public Service Week, the event gave our officers a chance to express their collective aspirations for the future of public service. Our staff also participated in many enriching events and workshops during OEF.

The STAR and TWINKLE schemes (FY 2016)

AVA has in place two schemes to encourage innovative ideas and solutions.

 <p>STAR</p>	 <p>TWINKLE</p>
<p><i>(Striving and Aiming for Excellence through Teamwork)</i></p> <p>Officers form project teams that look into improving services or processes.</p>	<p><i>(Tapping Wild and Innovative Ideas for Knowledge, Learning and Exchange)</i></p> <p>Individual officers submit suggestions on how to improve service delivery or efficiency.</p>
<p>★ 46 completed STAR projects</p>	<p>84% Participation rate</p> <p>Ratio 2.0</p>

▶ DEVELOPING THE POTENTIAL OF OUR TALENTS

AVA has in place a comprehensive training framework comprising areas such as generic core, functional, and technical trainings, individual learning plans, as well as professional and leadership development. An average of 11.1 learning days per staff was achieved in FY 2016.

For example, to equip our officers with technical expertise and keep them abreast of emerging trends, the following trainings were provided:

- In-house lectures on animal health and food safety tailored for AVA officers who carry out regulatory work.
- A specialist diploma course in One Health, co-organised with Temasek Polytechnic, that equips field and operational officers with concepts and theories of public health, especially in the context of Singapore.
- A lecture on anti-microbial resistance by Dr Wondwossen Gebreyes (Professor of Molecular Epidemiology, Director of Global Health Programs at the Ohio State University).



To build a culture of learning, we organised sessions for staff to share their insights drawn from overseas study trips, as well as their knowledge on the planning and development of farm land, transformation of the local agriculture sector, smart nation, and data management. A 'save-fail workshop' was also held to provide middle managers with the opportunity to share their lessons learnt from past failures or challenges.

In addition, AVA continued to build up our pool of talent through our scholarship programme. During the FY, seven scholarships were awarded in the areas of agriculture management, food science, and veterinary science.



Commending good work



The National Day Awards recognises various forms of merit and service to Singapore. In FY 2016, a total of 10 of staff, including AVA's former Chairman Mr Koh Soo Keong, were honoured for their contributions. Altogether, they received one Public Service Star, two Bronze Public Administration Medals, two Commendation Medals, four Efficiency Medals, and two Long Service Medals.

The inaugural AVA Achievement Awards ceremony was held in March 2017. Eight cross-departmental and inter-agency project teams were recognised for their good work in exemplifying the AVA ExCITe values.



PUTTING OUR CUSTOMERS FIRST

As a customer-oriented organisation, we are constantly improving our service delivery to meet rising public expectations. Our efforts in FY 2016 were focused on providing greater convenience and a seamless customer experience. Initiatives were also put in place to inculcate a culture of customer service excellence in AVA.

▶ DETERMINING SATISFACTION LEVELS

To improve our customer service delivery, it is important to understand our customers' needs and their experiences. A survey done in FY 2016 found that our customer satisfaction ratings by business owners and pet dog owners improved significantly from 2010 to 2016. We also continued to be rated highly on food security and safety by the public.

▶ BRINGING EASE TO ONLINE TRANSACTIONS

The Singapore Corporate Access (CorpPass) is a new authentication and authorisation service for businesses to transact online with government agencies using a single corporate digital identity. During the FY, AVA completed the enhancement of our e-services to incorporate CorpPass. This meant that our customers no longer have to use their personal SingPass accounts for commercial purposes. This service also eliminated the need for multiple logins across different e-services, and granted greater internal control within a business.

In October 2016, AVA implemented a new booking system in iFast that allowed traders to book an inspection appointment electronically, without having to submit scanned hardcopies. This helped to save time and eliminate paper trail for our customers. At the same time, this enhancement also helped AVA to improve administrative efficiency, as AVA officers no longer have to manually key in data from the hardcopy forms; these will be automatically captured with e-submission of the online form.

In December 2016, AVA also implemented MyInfo, a consent-based platform with a feature that allows government e-forms to be automatically filled out. By choosing to activate this feature, customers no longer have to repeatedly fill out their personal data every time their pet dog's licence is due for renewal. The integration of MyInfo with other AVA e-services is in the pipeline.

▶ PROVIDING A SEAMLESS CUSTOMER EXPERIENCE

AVA is in the midst of developing new platforms to enhance the overall service experience of our customers. The upcoming Customer Service Portal will allow customers to seamlessly access all AVA e-services, view their transactions, and monitor their interactions with us. The Customer Service Relationship Management System, which is also being developed, will enable us to track our responses to customers more effectively. It will help us to identify trends that will enhance our decision-making.

▶ IMPROVING THE PET DOG IMPORT EXPERIENCE

To facilitate the import of pet dogs into Singapore, AVA implemented initiatives to make the experience more pleasant for owners. Firstly, our website was reorganised for better usability. The content was re-written to be easy to understand. Secondly, directional information and useful details on the various clearance processes were added on the website. Furthermore, beginning 2016, pet owners or importers no longer have to personally collect their imported animals from the aircraft and transfer them to AVA's Changi Animal and Plant Quarantine Station. A new protocol was put in place for the ground handling agency to do so, thus reducing waiting time for customers.



AVA Service Day 2017



Held on 10 February 2017, this FY's Service Day reinforced AVA's core values of teamwork and service excellence. The annual event invited members of the leadership team to shed light on the collaborative efforts undertaken by various groups in AVA to improve customers' experience in pet dog import and export.

In addition, 54 well-deserving officers received their Excellent Service awards. Eight officers were also conferred the Quarterly Star Service award, and another two received the annual Distinguished Service award.

As part of upgrading service quality in AVA, a 'Write It Right' workshop was conducted to improve our officers' skills in written correspondence with customers.



CARING FOR OUR PEOPLE,
COMMUNITY & ENVIRONMENT

AVA cares for its people as well as the community and environment around it. Our staff bond, communicate, and engage with each other through various engagement sessions and recreational activities. Besides helping them to build esprit de corps, and we encourage them to lead a healthy lifestyle, contribute to our community, and conserve resources. The AVA Staff Recreation Committee (ASRC) also organised a wide range of recreational, health, and family-oriented activities throughout the FY.

HEALTHY LIFESTYLE



Bi-monthly Fruit Day
To promote general well-being and encourage staff to lead a healthy lifestyle, all staff continued to receive a fruit every 2 months.



ACTIVE Day (16 May 2016)

- 'Fun@Work' theme emphasised the ways in which healthy living can be integrated into hectic work schedules.
- Comprised health talks, game booths, and a Zumba workout.



Complimentary Annual Health Screening

- A mask-fitting session was organised to teach staff how to wear a mask correctly in case of a bird flu outbreak.

Health Talks



AVA FACILITATED AND TOOK PART IN THE FOLLOWING MINISTRY OF NATIONAL DEVELOPMENT RECREATION CLUB (MNDRC) ACTIVITIES:



- Kranji Countryside Farmers' Market
- Pottery workshop at Thow Kwang Pottery Jungle
- National Orchid Garden tour
- Indian Heritage Gallery tour
- ISD Heritage Centre tour
- Visit to Enabling Village
- Macaron workshop



STAFF ENGAGEMENT

AVA Alumni Visit to JEM HQ (13 Jan 2017)

- AVA welcomed our alumni for a visit to AVA HQ at JEM, providing them an opportunity to reconnect with former colleagues
- Tour of AVA HQ @ JEM
- Health talk on managing cholesterol levels
- Lunch with AVA Leadership Team

21 staff engagements sessions

- Organised to promote communication between leadership team and officers.
- Conducted briefings on staff appraisal, performance management, and re-employment.



CHARITY BAZAAR (1 DEC 2016)



About \$22,000 raised and donated to Kumpung Senang

ENVIRONMENTAL SUSTAINABILITY



Environment Sustainability Committee set up

- Champions from each Group were appointed to ensure the green agenda is spread through all levels of staff.



BONDING WITH COLLEAGUES AND FAMILY

Family Day (13 Aug 2016)

@ SEA Aquarium at Resorts World Sentosa

Dinner and Dance (17 Feb 2017)

@ Furama City Centre hotel



Bring-Your-Family-to-Work Day (30 Dec 2016)

- Visit to AVA's Marine Aquaculture Centre
- Tour of AVA HQ @ JEM
- Responsible Pet Ownership Talk



Conservation of resources

- Monitoring of energy consumption
- Lunch-time talks and educational emailers on energy-saving tips
- Participated in International Earth Hour on 25 March 2017.



PERFORMANCE INDICATORS

▶ VETERINARY PUBLIC HEALTH & FOOD SAFETY

Outcome Indicators Objectives

Objective	Outcome Indicators	Performance
Ensure a resilient supply of safe and wholesome food to Singapore	Number of cases of food-borne illnesses per 100,000 population directly attributable to AVA	0.16 cases per 100,000 population
	Number of key food items that has less than 50% of supply from a single country	Achieved for key food items pork, chicken, and fish.

Output Indicators

Activity	Volume
To hold business cluster meetings	8 business clusters meetings and 1 combined cluster meeting
To conduct food sourcing missions/ study trips	2 food sourcing trips conducted (Thailand and Australia)
To monitor the compliance status of locally manufactured/ processed food with Food Regulations	93.27% of the total number of inspections conducted in FY 2016 was in compliance with the Sale of Food Act and the Wholesome Meat and Fish Act.
	90% of the total number of samples collected in FY 2016 was in compliance with the Sale of Food Act and the Wholesome Meat and Fish Act.
To conduct inspection and sampling of export consignments within three working days	100% of the export consignments were carried out on the scheduled dates of the manufacturers/exporters.
To process application for food establishments' licenses within five working days from the date of receipt of application	100% of applications for food establishments' licenses were processed within five working days from the date of receipt of application.

▶ ANIMAL & PLANT HEALTH

Outcome Indicators

Objective	Outcome Indicators	Performance
Safeguarding animal and plant health	Percentage of freedom from important animal and plant disease outbreaks	96.5% freedom or free from outbreaks of at least 112 out of 116 important animal and plant diseases

Output Indicators

Activity	Volume
To provide laboratory diagnostic and analytic services to identify and manage animal diseases and plant pests, as well as soil health related problems	150,467 tests
To provide training and certify farm workers on proper handling of pesticides	167 certified pesticide operators

▶ FOOD SUPPLY AND TECHNOLOGY

Outcome Indicators

Objective	Outcome Indicators	Performance
Management of the local agri-industry (farming sector)	Level of productivity of vegetable, fish, and layer farms in Agrotechnology Parks and coastal fish culture farms	<ul style="list-style-type: none"> • Eggs : 9.6 million pcs/ha • Coastal fish farms : 39.85 tons/ha • Land-based food fish farms : 21.96 tons/ha • Leafy vegetables : 116 tons/ha

Output Indicators

Activity	Volume
Accreditation of overseas food sources	40 inspections
Number of food samples tested	53,379 samples
Number of laboratory tests performed	265,030 tests
To manage farms in agrotechnology parks and fish farming zones	269 land-based farms and 118 coastal farms

▶ AGRI-TRADE FACILITATION SERVICES

Outcome Indicators

Objective	Outcome Indicators	Performance
Facilitate trade of animal, plant and food product	Ensure no more than 0.3% of certified export consignments are rejected from importing countries	100% fulfilled

Output Indicators

Activity	Volume
To issue export and import documents for animal, plant, and food products	Food Export Certificates : 4,301
	Free Sale Certificates : 7,244
	Veterinary Certificates : 5,911
	Ornamental Fish Export Health Certificates : 6,367
	Live Food Fish Export Health Certificates : 3,039
	CITES Certificates : 15,831
	Phytosanitary Certificates : 10,169

▶ INTERNATIONAL AND REGIONAL COMMITMENTS

Outcome Indicators

Objective	Outcome Indicators	Performance
Represent the government internationally on matters related to or connected with the agri-food and veterinary sectors	Fulfil Singapore's international obligations in SEAFDEC, ASEAN, APEC, and CITES	Fulfilled
	Singapore's interests in agri-food and veterinary services are not compromised	Achieved

Output Indicators

Activity	Volume
To manage the Marine Fisheries Research Department (MFRD/SEAFDEC) programmes through the provision of infrastructure (land, buildings and supporting facilities) and local staff	Successfully implemented in a timely manner, all regional projects and activities under the MFRD/SEAFDEC programmes, i.e. two regional projects and the SEAFDEC information programme.
To participate in relevant meetings and activities of AMAF, OIE, SEAFDEC, CITES, CODEX Alimentarius, Bilateral, WTO FTA, APEC, ASEM and IPPC	Participated in 210 relevant meetings and activities

CORPORATE GOVERNANCE

The AVA Board and Leadership Team have put in place a framework for adherence to good corporate governance practices.

The AVA Act governs the work of AVA 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 Board.

► INTERNAL CONTROL FRAMEWORK

AVA 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 AVA'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 AVA;
- 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;
- An internal disclosure policy that allows officers to report wrongful practices; and
- Independent internal audit function and external audit functions.

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

► INTERNAL AND EXTERNAL AUDIT FUNCTIONS

The Internal Audit Unit operates independently from other Groups in AVA, and reports to the AVA Board's Audit and Risk Committee. The Unit provides consulting advice and performs assurance reviews of the functions of AVA and its subsidiary independently and objectively in order to assist the organisation in the continuous improvement of its internal control systems and governance processes, and to comply with required government, financial and statutory regulations. It communicates the audit results with AVA's Management, and provides analysis and recommendations on areas for improvement, and monitors the follow-up actions.

AVA's accounts are audited by the Auditor-General's Office of Singapore or such other auditor that may be appointed by the Minister for National Development in consultation with the Auditor-General. The external auditor engaged for the financial year, which ended on 31 March 2017, was BDO LLP. The external auditor reports its audit findings and recommendations to AVA Board's Audit and Risk Committee, the Ministry of National Development and Auditor-General's Office.

▶ FINANCE COMMITTEE

Membership	Terms of References
Chairman: Mrs Lee Ai Ming	Review annual budget proposal and recommend to AVA for endorsement.
Members: <ul style="list-style-type: none"> • Ms Tan Poh Hong • Mr Tan Kok Yam • Mr Lau Teck Sien • Ms Harasha Bafana 	Review changes in accounting practices, policies, principles and financial regulations and procedures. Review and endorse major projects before they are submitted to AVA Board for approval.

▶ AUDIT AND RISK COMMITTEE (ARC)

Membership	Terms of References
Chairman: Mr Dileep Nair	Review audited financial statements with external auditors and recommend their submission to AVA for approval.
Members: <ul style="list-style-type: none"> • Mr Eugene Wong • Mr Peter Chia • Ms Chua Mui Hoong • Associate Professor Ho Kim Wai (<i>non-Board member appointed to ARC on 6 Oct 2016</i>) 	Review audit plans and observations of internal and external auditors, and ensure follow-up by AVA's Management in respect of audit recommendations, including internal control improvements. Review the appointment of external auditor and annual fees payable for AVA's approval. Review and endorse risk management framework and policies.

▶ STAFF REVIEW COMMITTEE (SRC)

Membership	Terms of References
Chairman: Mr Lim Neo Chian	Review and endorse promotion of officers into and within superscale grades.
Members: <ul style="list-style-type: none"> • Ms Tan Poh Hong • RADM Tang Kong Choong • Mr Yeo Guat Kwang • Prof David Chan 	Approve recruitment of superscale officers. Review development and retention strategies. Chairs Board of inquiry for the discipline of employees. Review AVA's compensation and incentive framework.

▶ COMMUNICATIONS AND ENGAGEMENT COMMITTEE (CEC)

Membership	Terms of References
Chairman: Ms Harasha Bafana	To guide and provide strategic advice on: <ul style="list-style-type: none"> • AVA's communications via various forms of media (mainstream media, social media, etc.); and • Suitable platforms and forums for engagement with various target groups.
Members: <ul style="list-style-type: none"> • Ms Tan Poh Hong • Prof David Chan • Ms Chua Mui Hoong 	

▶ IMPLEMENTED REVISED ERM FRAMEWORK

AVA adopted Enterprise Risk Management (ERM) as a systematic approach to embed the management of risk into operations and strategy of an organisation. It involves risk identification, risk analysis, risk control and risk monitoring.

AVA revised its ERM risks in 2016 based on the impact of risks on (a) the ability of AVA to fulfil its mission, and (b) the trust and confidence that the public and AVA's stakeholders have in AVA.

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Financial Statements

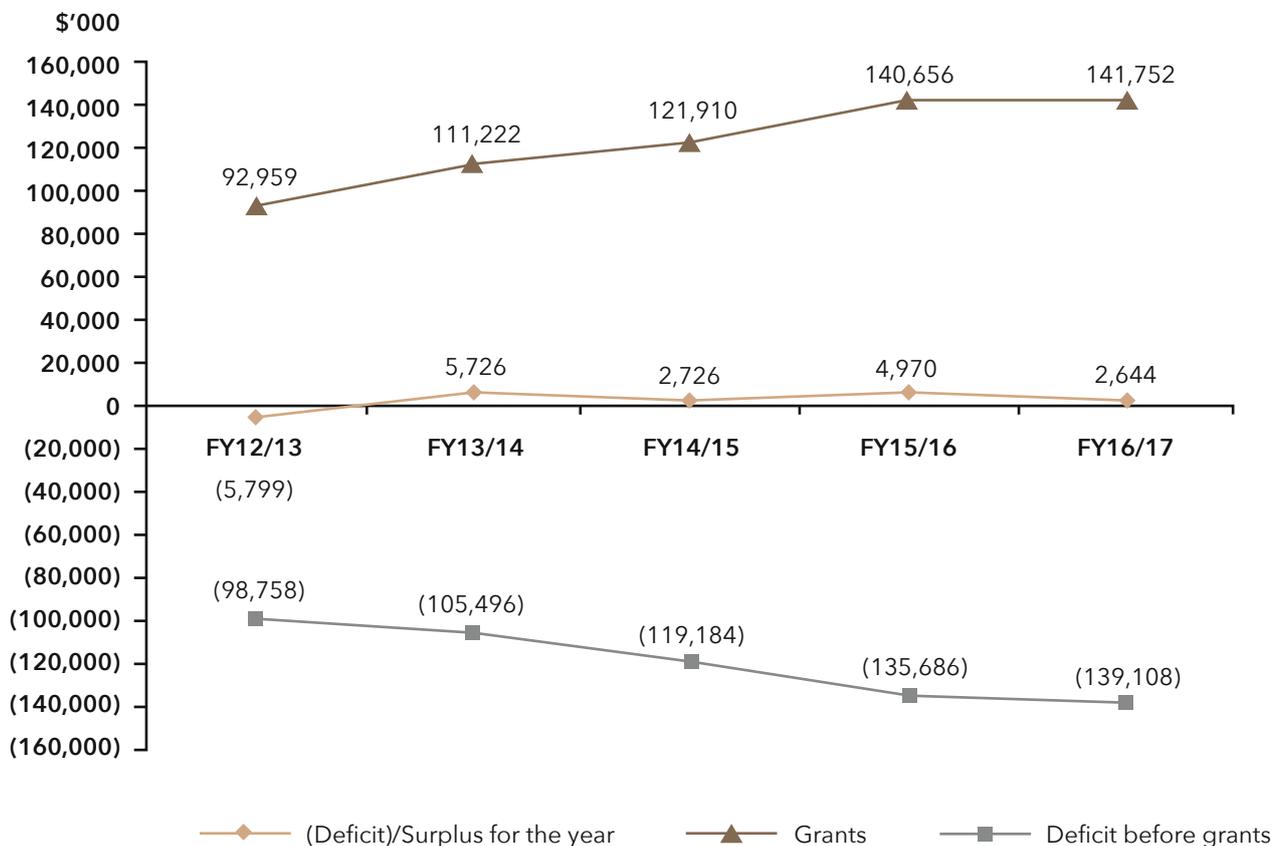
Year ended 31 March 2017

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FIVE-YEAR FINANCIAL SUMMARY OF THE GROUP

INCOME AND EXPENDITURE	FY12/13	FY13/14	FY14/15	FY15/16	FY16/17
	\$'000	\$'000	\$'000	\$'000	\$'000
Income	35,405	36,242	36,967	36,591	37,054
Grant	92,959	111,222	121,910	140,656	141,752
Total income	128,364	147,464	158,877	177,247	178,806
Expenditure	134,163	140,572	155,691	171,328	175,595
Surplus/(Deficit) before contribution to Consolidated Fund and taxation	(5,799)	6,892	3,186	5,919	3,211
Contribution to Consolidated Fund	-	(1,162)	(459)	(949)	(567)
Taxation	-	(4)	(1)	-	-
Surplus/(Deficit) for the year	(5,799)	5,726	2,726	4,970	2,644

SURPLUS/(DEFICIT) FOR THE YEAR



FIVE-YEAR FINANCIAL SUMMARY OF THE GROUP (Continued)

FINANCIAL POSITION

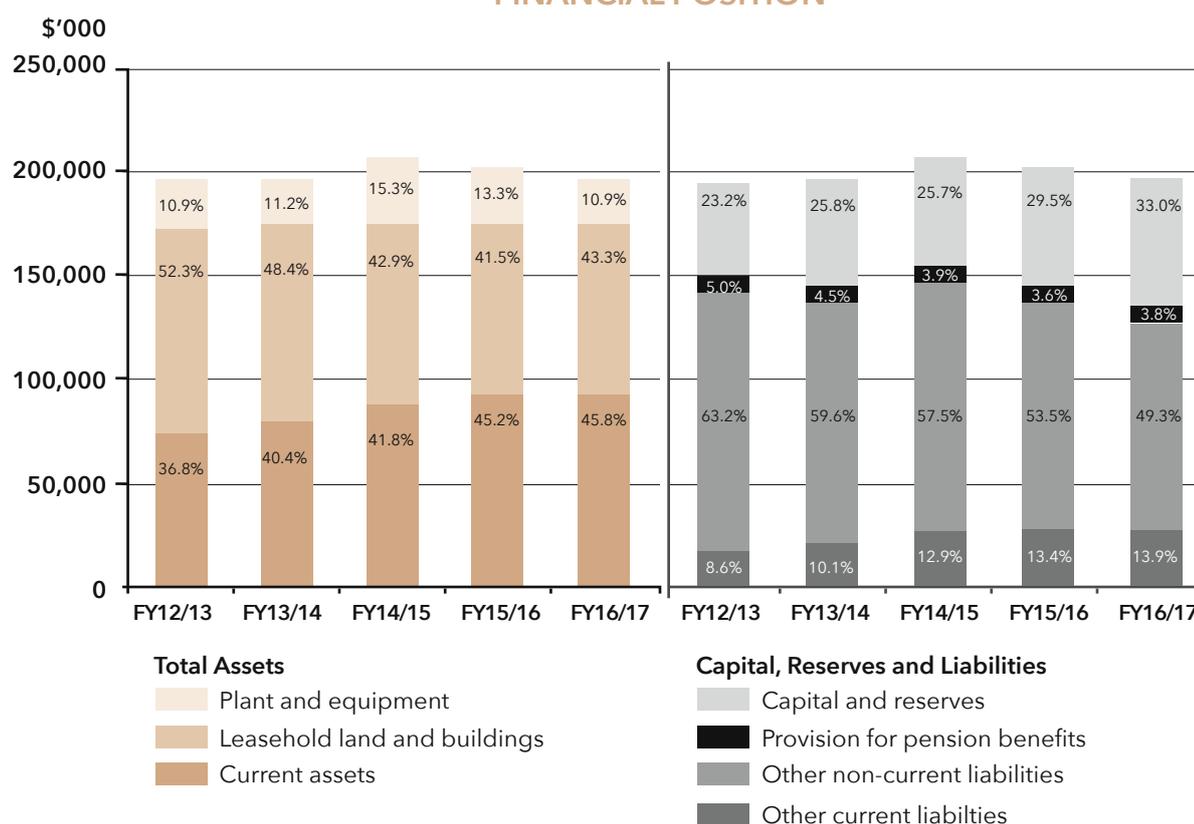
As at 31 March 2017, the Group's total assets amounted to \$198 million (31 March 2016: \$202.5 million). Property, plant and equipment which stood at \$107.4 million accounted for 54.2% of the total assets (31 March 2016: 54.8%).

Capital, reserves and liabilities of the Group totalled \$198 million as at 31 March 2017 (31 March 2016: \$202.5 million). Of the \$198 million, capital and reserves totalled \$65.2 million and other non-current liabilities stood at \$97.7 million. Provision for pension benefits and other current liabilities accounted for \$7.4 million and \$27.6 million respectively.

BALANCE SHEET

	FY12/13	FY13/14	FY14/15	FY15/16	FY16/17
	\$'000	\$'000	\$'000	\$'000	\$'000
Plant and equipment	21,321	22,151	31,665	26,895	21,523
Leasehold land and buildings	102,286	95,658	89,029	84,032	85,856
Current assets	71,832	79,751	86,752	91,614	90,644
Total assets	195,439	197,560	207,446	202,541	198,023
Capital and reserves	45,342	51,067	53,406	59,814	65,246
Provision for pension benefits	9,689	8,893	8,009	7,362	7,473
Other non-current liabilities	123,514	117,750	119,283	108,307	97,695
Other current liabilities	16,894	19,850	26,748	27,058	27,609
Total capital, reserves and liabilities	195,439	197,560	207,446	202,541	198,023

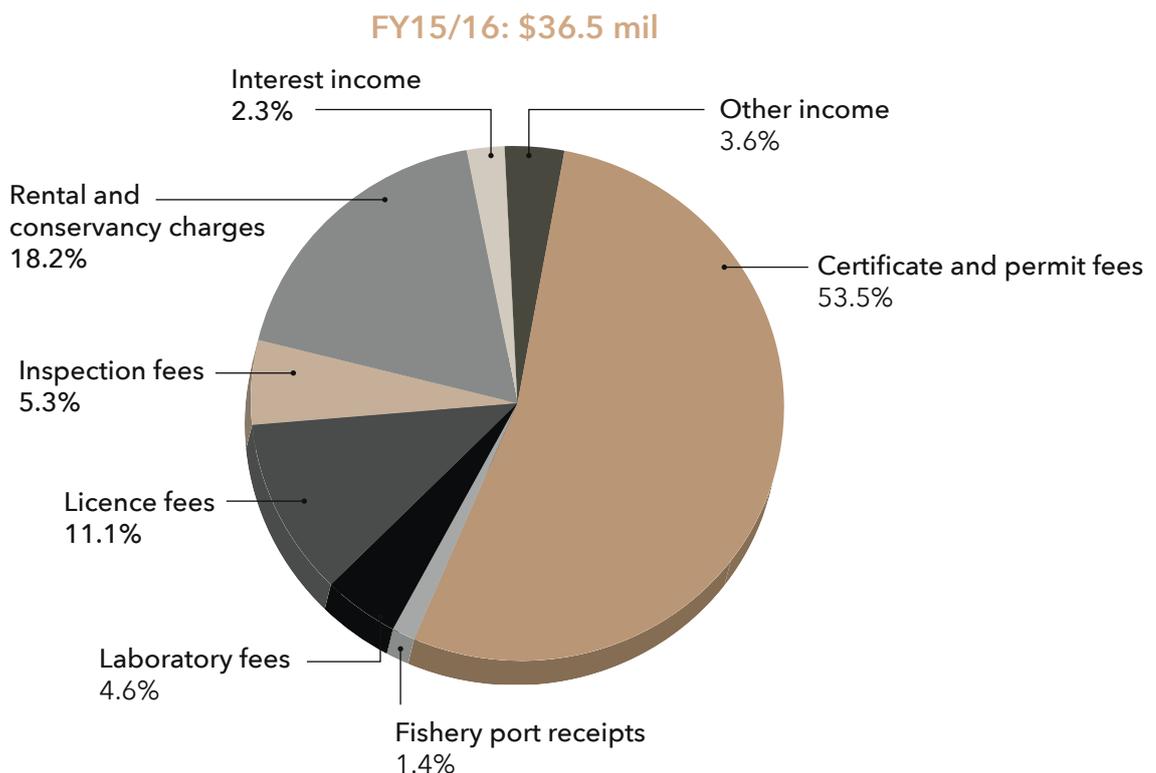
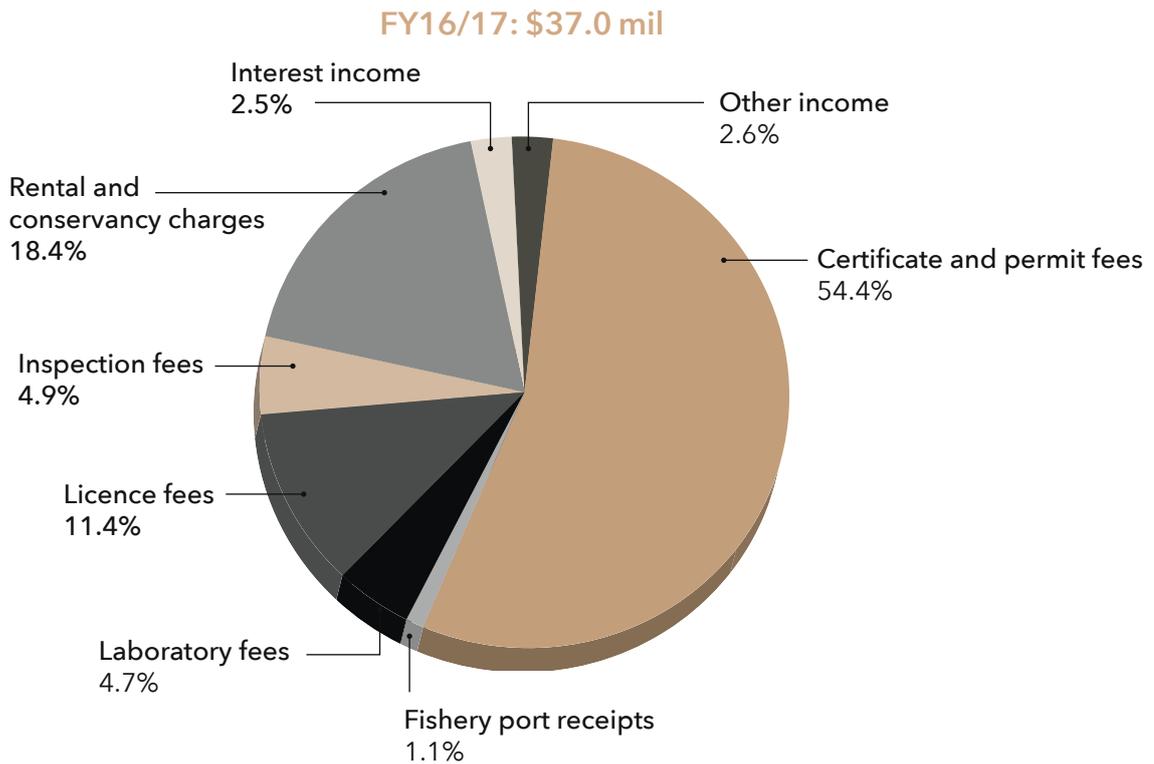
FINANCIAL POSITION



FINANCIAL REVIEW

INCOME

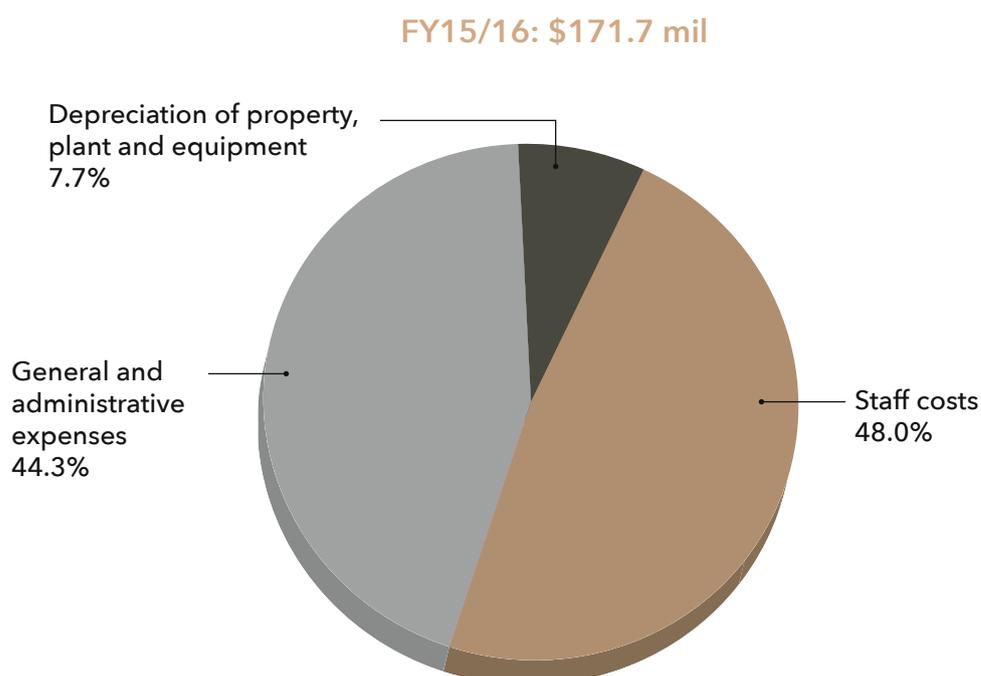
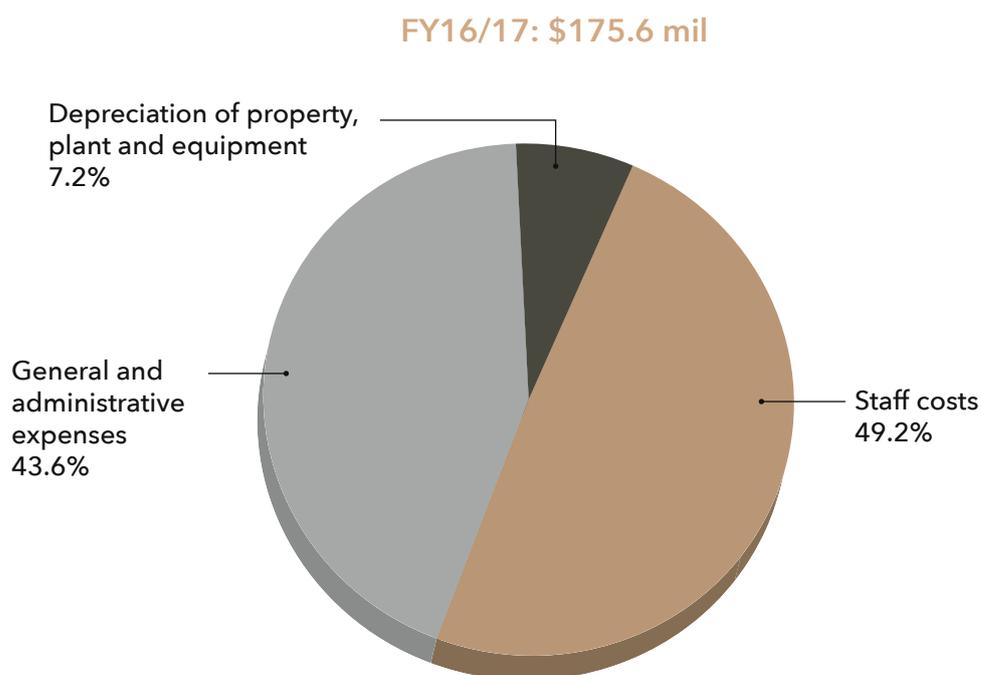
The Group's income comprised mainly certificate and permit fees (54.4%); rental income from the fishery ports (18.4%); and licence fees (11.3%). The Group's income increased by \$0.5 million (1.4%) to \$37 million in FY16/17 as compared to \$36.5 million in FY15/16.



FINANCIAL REVIEW (Continued)

EXPENDITURE

The Group's expenditure comprised mainly staff costs (49.2%), general and administrative expenses (43.6%) and depreciation (7.2%). The Group's expenditure increased by \$3.9 million (2.2%) for FY16 as compared to last financial year.



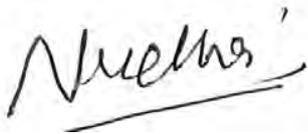
STATEMENT BY THE BOARD FOR THE YEAR ENDED 31 MARCH 2017

In the opinion of the members of the Board:

- (a) the accompanying financial statements of the Agri-Food and Veterinary Authority (the "Authority") and its subsidiary (the "Group") as set out on pages 10 to 45 are drawn up in accordance with the provisions of the Agri-Food and Veterinary Authority Act (Chapter 5, 2012 Revised Edition) and Statutory Board Financial Reporting Standards so as to present fairly, in all material respects, the state of affairs of the Authority and the Group as at 31 March 2017, and the results and changes in equity of the Authority and the Group and changes in cash flows of the Group for the year ended on that date.
- (b) proper accounting and other records have been kept, including records of all assets of the Authority whether purchase, donated or otherwise; and
- (c) the receipts, expenditure, investment of moneys and acquisition and disposal of assets by the Authority during the financial year ended 31 March 2017 have been in accordance with the provisions of the Act.

The Board of Agri-Food and Veterinary Authority has, on the date of this statement, authorised these financial statements for issue.

On behalf of the members of the Board



Lim Neo Chian
Chairman



Tan Poh Hong
Chief Executive Officer

19 May 2017

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF THE BOARD OF THE AGRI-FOOD AND VETERINARY AUTHORITY

Report on the Audit of the Financial Statements

Opinion

We have audited the financial statements of Agri-Food and Veterinary Authority (the "Authority"), and its subsidiary (the "Group"), which comprise the consolidated statement of financial position of the Group and statement of financial position of the Authority as at 31 March 2017, and the consolidated statement of comprehensive income, consolidated statement of changes in equity, consolidated statement of cash flows of the Group and the statement of comprehensive income, statement of changes in equity of the Authority for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements of the Group, the statement of financial position, statement of comprehensive income and statement of changes in equity of the Authority are properly drawn up in accordance with the provisions of the Agri-Food and Veterinary Authority Act Chapter 5, 2012 Revised Edition (the "Act") and the Statutory Board Financial Reporting Standards so as to present fairly, in all material respects, the state of affairs of the Group and the Authority as at 31 March 2017 and the results and changes in equity of the Group and the Authority and cash flows of the Group for the year ended on that date.

Basis for Opinion

We conducted our audit in accordance with Singapore Standards on Auditing ("SSAs"). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Authority in accordance with the Accounting and Corporate Regulatory Authority ("ACRA") *Code of Professional Conduct and Ethics for Public Accountants and Accounting Entities* ("ACRA Code") together with the ethical requirements that are relevant to our audit of the financial statements in Singapore, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the ACRA Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other matters

The financial statements of the Group for the year ended 31 March 2016 were audited by another auditor who expressed an unmodified opinion on those statements on 1 July 2016.

Other Information

Management is responsible for the other information. The other information obtained at the date of this auditor's report comprises the Statement by the Board, but does not include the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed on the other information obtained prior to the date of this auditor's report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with the provisions of the Act and Statutory Board Financial Reporting Standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF THE BOARD OF THE AGRI-FOOD AND VETERINARY AUTHORITY

Report on the Audit of the Financial Statements (Continued)

Responsibilities of Management and Those Charged with Governance for the Financial Statements (Continued)

A statutory board is constituted based on its Act and its dissolution requires Parliament's approval. In preparing the financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as appropriate, matters related to going concern and using the going concern basis of accounting unless there is intention to wind up the Group or for the Group to cease operations.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with SSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with SSAs, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

INDEPENDENT AUDITOR'S REPORT TO THE MEMBERS OF THE BOARD OF THE AGRI-FOOD AND VETERINARY AUTHORITY

Report on Other Legal and Regulatory Requirements

Opinion

In our opinion,

- (a) the receipts, expenditure, investment of moneys and the acquisition and disposal of assets by the Authority during the year are, in all material respects, in accordance with the provisions of the Act; and
- (b) proper accounting and other records have been kept, including records of all assets of the Authority whether purchased, donated or otherwise.

Basis for Opinion

We conducted our audit in accordance with SSAs. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Compliance Audit* section of our report. We are independent of the Group in accordance with the ACRA Code together with the ethical requirements that are relevant to our audit of the financial statements in Singapore, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the ACRA Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion on management's compliance.

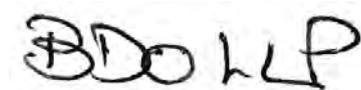
Responsibilities of Management for Compliance with Legal and Regulatory Requirements

Management is responsible for ensuring that the receipts, expenditure, investment of moneys and the acquisition and disposal of assets, are in accordance with the provisions of the Act. This responsibility includes implementing accounting and internal controls as management determines are necessary to enable compliance with the provisions of the Act.

Auditor's Responsibilities for the Compliance Audit

Our responsibility is to express an opinion on management's compliance based on our audit of the financial statements. We planned and performed the compliance audit to obtain reasonable assurance about whether the receipts, expenditure, investment of moneys and the acquisition and disposal of assets, are in accordance with the provisions of the Act.

Our compliance audit includes obtaining an understanding of the internal control relevant to the receipts, expenditure, investment of moneys and the acquisition and disposal of assets; and assessing the risks of material misstatement of the financial statements from non-compliance, if any, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control. Because of the inherent limitations in any accounting and internal control system, non-compliances may nevertheless occur and not be detected.



BDO LLP

Public Accountants and
Chartered Accountants

Singapore
19 May 2017

STATEMENTS OF FINANCIAL POSITION

AS AT 31 MARCH 2017

	Notes	The Authority		The Group	
		FY16/17	FY15/16	FY16/17	FY15/16
		\$	\$	\$	\$
CAPITAL AND RESERVES					
Share capital	4	8,809,767	1,439,156	8,809,767	1,439,156
Accumulated surplus		56,108,672	57,929,451	56,436,101	58,374,769
		<u>64,918,439</u>	<u>59,368,607</u>	<u>65,245,868</u>	<u>59,813,925</u>
Represented by:					
NON-CURRENT ASSETS					
Property, plant and equipment	5	107,379,216	110,926,507	107,379,216	110,926,507
Subsidiary	6	2	2	-	-
		<u>107,379,218</u>	<u>110,926,509</u>	<u>107,379,216</u>	<u>110,926,507</u>
CURRENT ASSETS					
Prepayments		1,018,262	928,076	1,018,262	930,856
Trade and other receivables	7	1,759,956	2,487,699	1,770,420	2,600,439
Operating grant receivable from Government		-	14,609,568	-	14,609,568
Capital and other grant receivable from Government		-	4,855,693	-	4,855,693
Cash and cash equivalents	8	87,508,657	68,253,826	87,855,315	68,617,406
		<u>90,286,875</u>	<u>91,134,862</u>	<u>90,643,997</u>	<u>91,613,962</u>
CURRENT LIABILITIES					
Trade and other payables	9	21,120,624	20,782,402	21,150,315	20,816,182
Amount due to Government	9	94,376	13,888	94,376	13,888
Rental, security and other deposits	9	2,666,657	2,646,291	2,666,657	2,646,291
Capital and other grants received in advance	10	324,744	(132,526)	324,744	(132,526)
Deferred income		2,806,409	2,765,053	2,806,409	2,765,053
Provision for pension benefits	11	1,809,468	1,913,566	1,809,468	1,913,566
Provision for contribution to consolidated fund		566,892	949,415	566,892	949,415
		<u>29,389,170</u>	<u>28,938,089</u>	<u>29,418,861</u>	<u>28,971,869</u>
NET CURRENT ASSETS		60,897,705	62,196,773	61,225,136	62,642,093
NON-CURRENT LIABILITIES					
Provision for pension benefits	11	5,663,614	5,447,993	5,663,614	5,447,993
Deferred capital grants	12	97,407,412	108,019,224	97,407,412	108,019,224
Provision for reinstatement costs		287,458	287,458	287,458	287,458
		<u>103,358,484</u>	<u>113,754,675</u>	<u>103,358,484</u>	<u>113,754,675</u>
		<u>64,918,439</u>	<u>59,368,607</u>	<u>65,245,868</u>	<u>59,813,925</u>
Net assets of MFRD Fund	13	121,484	129,047	121,484	129,047

The accompanying notes form an integral part of these financial statements.

STATEMENTS OF COMPREHENSIVE INCOME

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

	Notes	The Authority		The Group	
		FY16/17	FY15/16	FY16/17	FY15/16
		\$	\$	\$	\$
INCOME					
Certificate and permit fees		20,160,365	19,557,595	20,160,365	19,557,595
Fishery port receipts		409,970	524,219	409,970	524,219
Laboratory fees		1,751,511	1,697,466	1,751,511	1,697,466
Licence fees		4,202,143	4,066,514	4,202,143	4,066,514
Inspection fees		1,815,522	1,947,351	1,788,598	1,942,551
Rental and conservancy charges		6,823,392	6,673,126	6,823,392	6,673,126
Interest income		933,306	824,728	939,183	827,656
Other income		929,242	1,147,986	978,627	1,301,916
		<u>37,025,451</u>	<u>36,438,985</u>	<u>37,053,789</u>	<u>36,591,043</u>
EXPENDITURE					
Staff costs	14	86,364,567	82,618,845	86,362,367	82,617,965
General and administrative expenses	15	76,411,689	75,848,084	76,560,320	76,012,003
Depreciation of property, plant and equipment	5	12,705,057	13,083,804	12,705,057	13,083,804
Gain on disposal of property, plant and equipment		(38,574)	(40,171)	(38,574)	(40,171)
		<u>175,442,739</u>	<u>171,510,562</u>	<u>175,589,170</u>	<u>171,673,601</u>
DEFICIT BEFORE GRANTS		(138,417,288)	(135,071,577)	(138,535,381)	(135,082,558)
GRANTS					
Operating grants	16	128,518,926	127,111,930	128,518,926	127,111,930
Transfer from capital and other grants received in advance	10	712,532	153,600	712,532	153,600
Transfer from deferred capital grants	12	12,520,488	13,390,841	12,520,488	13,390,841
		<u>141,751,946</u>	<u>140,656,371</u>	<u>141,751,946</u>	<u>140,656,371</u>
SURPLUS BEFORE CONTRIBUTION TO CONSOLIDATED FUND AND TAXATION		3,334,658	5,584,794	3,216,565	5,573,813
Contribution to Consolidated Fund	18	(566,892)	(949,414)	(566,892)	(949,414)
Income tax credit/ (expense)	19	-	-	204	(46)
SURPLUS FOR THE YEAR		<u>2,767,766</u>	<u>4,635,380</u>	<u>2,649,877</u>	<u>4,624,353</u>
OTHER COMPREHENSIVE INCOME:					
Actuarial (loss)/gain on defined benefit plan	11	(5,545)	345,175	(5,545)	345,175
Other comprehensive income, net of tax		<u>(5,545)</u>	<u>345,175</u>	<u>(5,545)</u>	<u>345,175</u>
TOTAL COMPREHENSIVE INCOME FOR THE YEAR		<u>2,762,221</u>	<u>4,980,555</u>	<u>2,644,332</u>	<u>4,969,528</u>

The accompanying notes form an integral part of these financial statements.

STATEMENTS OF CHANGES IN EQUITY

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

	Note	Share Capital \$	Accumulated surplus \$	Total equity \$
The Authority				
Balance at 1 April 2015		1,000	52,948,896	52,949,896
Equity injection for the year	4	1,438,156	-	1,438,156
Surplus for the year		-	4,635,380	4,635,380
Other comprehensive income for the year, net of tax		-	345,175	345,175
Total comprehensive income for the year		-	4,980,555	4,980,555
Balance at 31 March 2016 and 1 April 2016		1,439,156	57,929,451	59,368,607
Equity injection for the year	4	7,370,611	-	7,370,611
Surplus for the year		-	2,767,766	2,767,766
Other comprehensive income for the year, net of tax		-	(5,545)	(5,545)
Total comprehensive income for the year		-	2,762,221	2,762,221
Dividend	4	-	(4,583,000)	(4,583,000)
Balance at 31 March 2017		8,809,767	56,108,672	64,918,439

The accompanying notes form an integral part of these financial statements.

STATEMENTS OF CHANGES IN EQUITY

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

	Note	Share Capital \$	Accumulated surplus \$	Total equity \$
The Group				
Balance at 1 April 2015		1,000	53,405,241	53,406,241
Equity injection for the year	4	1,438,156	-	1,438,156
Surplus for the year		-	4,624,353	4,624,353
Other comprehensive income for the year, net of tax		-	345,175	345,175
Total comprehensive income for the year		-	4,969,528	4,969,528
Balance at 31 March 2016 and 1 April 2016		1,439,156	58,374,769	59,813,925
Equity injection for the year	4	7,370,611	-	7,370,611
Surplus for the year		-	2,649,877	2,649,877
Other comprehensive income for the year, net of tax		-	(5,545)	(5,545)
Total comprehensive income for the year		-	2,644,332	2,644,332
Dividend	4	-	(4,583,000)	(4,583,000)
Balance at 31 March 2017		8,809,767	56,436,101	65,245,868

The accompanying notes form an integral part of these financial statements.

CONSOLIDATED STATEMENT OF CASH FLOWS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

	FY16/17	FY15/16
	\$	\$
CASH FLOWS FROM OPERATING ACTIVITIES		
Deficit before grants	(138,535,381)	(135,082,558)
Adjustments for:		
Depreciation of property, plant and equipment	12,705,057	13,083,804
Gain on disposal of property, plant and equipment	(38,574)	(40,171)
Property, plant and equipment written-off	17,000	539,534
Interest income	(939,183)	(827,656)
Provision for pension benefits	286,679	235,145
Operating deficit before working capital changes	<u>(126,504,402)</u>	<u>(122,091,902)</u>
Changes in working capital excluding cash and cash equivalents:		
Prepayments	(87,406)	14,764
Trade and other receivables	813,896	(721,843)
Trade and other payables	(464,830)	1,539,840
Amount due to Government	80,488	(94,798)
Rental, security and other deposits	20,366	206,264
Deferred income	41,356	355,813
Provision for pension benefits	(180,701)	(537,114)
	<u>(126,281,233)</u>	<u>(121,328,976)</u>
Payment of contribution to consolidated fund	(949,414)	(508,579)
Refund/(Payment) of income tax	204	(853)
Net cash used in operating activities	<u>(127,230,443)</u>	<u>(121,838,408)</u>
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchase of property, plant and equipment (Note A)	(8,394,907)	(8,554,287)
Proceeds from disposal of property, plant and equipment	57,678	44,557
Interest income received	955,306	602,917
Net cash used in investing activities	<u>(7,381,923)</u>	<u>(7,906,813)</u>
CASH FLOWS FROM FINANCING ACTIVITIES		
Dividends paid	(4,583,000)	-
Injection of equity (Note 4)	7,370,611	1,438,156
Government grants received	151,062,664	132,939,949
Cash generated from financing activities	<u>153,850,275</u>	<u>134,378,105</u>
Net increase in cash and cash equivalents	19,237,909	4,632,884
Cash and cash equivalents at beginning of year	<u>68,617,406</u>	<u>63,984,522</u>
Cash and cash equivalents at end of year (Note 8)	<u><u>87,855,315</u></u>	<u><u>68,617,406</u></u>

Note A:

During the financial year, the Group acquired property, plant and equipment with an aggregate cost of \$9,193,870 (FY15/16: \$7,710,133) of which \$802,279 (FY15/16: \$3,316) is yet to be paid as at the end of the financial year. Cash payments of \$8,394,907 (FY15/16: \$8,554,287) were made to purchase property, plant and equipment.

The accompanying notes form an integral part of these financial statements.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

1. General information

The Agri-Food and Veterinary Authority (the "Authority") is a statutory board established under the Agri-Food and Veterinary Authority Act (Chapter 5, 2012 Revised Edition) under the purview of the Ministry of National Development ("MND"). As a statutory board, the Authority is subject to the directions of the MND and is required to implement policies and comply with instructions from its supervising ministry and other government ministries and departments such as the Ministry of Finance.

The registered office is at 52 Jurong Gateway Road, #14-01, Singapore 608550.

The principal activities of the Authority are:

- (a) to regulate the safety and wholesomeness of food for supply to Singapore;
- (b) to promote and regulate animal and fish health, animal welfare and plant health;
- (c) to promote, facilitate and regulate the production, processing and trade of food and products related to or connected with the agri-food and veterinary sectors;
- (d) to develop, manage and regulate any agrotechnology park, agri-biotechnology park, mari-culture park, fishing harbour, and any other agri-food and veterinary centre or establishment;
- (e) to promote the development of the agri-food and veterinary sectors;
- (f) to advise and make recommendations to the Government on matters, measures and regulations related to or connected with the agri-food and veterinary sectors;
- (g) to represent the Government internationally on matters related to or connected with the agri-food and veterinary sectors; and
- (h) to carry out such other functions as are imposed upon the Authority by or under the Agri-Food and Veterinary Authority Act (Chapter 5, 2012 Revised Edition) or any other written law.

The principal activity of the subsidiary is disclosed in Note 6 to the financial statements.

2. Summary of significant accounting policies

2.1 Basis of preparation

The financial statements have been prepared in accordance with the historical cost basis, except as disclosed in accounting policies below, and are drawn up in accordance with the provisions of the Agri-Food and Veterinary Authority Act (Chapter 5, 2012 Revised Edition) and Statutory Board Financial Reporting Standards ("SB-FRS") including related Interpretations of SB-FRS ("INT SB-FRS").

The financial statements of the Group and the Authority are presented in Singapore dollar ("S\$").

The preparation of financial statements in compliance with SB-FRS requires management to make judgements, estimates and assumptions that affect the Group's application of accounting policies and reported amounts of assets, liabilities, revenue and expenses. Although these estimates are based on management's best knowledge of current events and actions, actual results may differ from those estimates. The areas where such judgements or estimates have the most significant effect on the financial statements are disclosed in Note 3.

In the current financial year, the Group adopted all the new and revised SB-FRSs and INT SB-FRS that are effective from that date and are relevant to its operations. The adoption of these new and revised SB-FRSs and INT SB-FRSs does not result in changes to the Authority's accounting policies and has no material effect on the amounts reported for the current or prior years.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

2. Summary of significant accounting policies (Continued)

2.1 Basis of preparation (Continued)

SB-FRS issued but not yet effective

At the date of authorisation of these financial statements, the following FRS and INT FRS that are relevant to the Group were issued but not yet effective, and have not been adopted early in these financial statements:

		Effective date (annual periods beginning on or after)
SB-FRS 1001	: Accounting and Disclosure for Non-Exchange Revenue	1 January 2018
FRS 109	: Financial Instruments	1 January 2018
SB-FRS 115	: Revenue from Contracts with Customers	1 January 2018
SB-FRS 115 (Amendments)	: Clarifications to FRS 115 Revenue from Contracts with Customers	1 January 2018
SB-FRS 116	: Leases	1 January 2019

Except as disclosed below, the Authority and the Group anticipate that the adoption of the above SB-FRSs in future periods will not have a material impact on the financial statements of the Authority and the Group.

SB-FRS 109 Financial Instruments

SB-FRS 109 supersedes SB-FRS 39 *Financial Instruments: Recognition and Measurement* with new requirements for the classification and measurement of financial assets and liabilities, impairment of financial assets and hedge accounting.

Under SB-FRS 109, financial assets are classified into financial assets measured at fair value or at amortised cost depending on the Group's business model for managing the financial assets and the contractual cash flow characteristics of the financial assets. Fair value gains or losses will be recognised in profit or loss except for certain equity investments, for which the Group will have a choice to recognise the gains and losses in other comprehensive income. A third measurement category has been added for debt instruments – fair value through other comprehensive income. This measurement category applies to debt instruments that meet the Solely Payments of Principal and Interest contractual cash flow characteristics test and where the Authority is holding the debt instrument to both collect the contractual cash flows and to sell the financial assets.

SB-FRS 109 carries forward the recognition, classification and measurement requirements for financial liabilities from SB-FRS 39, except for financial liabilities that are designated at fair value through profit or loss, where the amount of change in fair value attributable to change in credit risk of that liability is recognised in other comprehensive income unless that would create or enlarge an accounting mismatch. In addition, SB-FRS 109 retains the requirements in SB-FRS 39 for de-recognition of financial assets and financial liabilities.

In line with the SB-FRS requirements on the implementation date, the Group plans to adopt SB-FRS 109 in the financial year beginning on 1 April 2018 with retrospective effect in accordance with transitional provisions and will include additional disclosures in the financial statements for that year.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

2. Summary of significant accounting policies (Continued)

2.1 Basis of preparation (Continued)

SB-FRS issued but not yet effective (Continued)

SB-FRS 109 Financial Instruments (Continued)

The Group's initial assessment is as described below.

Classification and measurement

The Group does not expect a significant change to the measurement basis arising from adopting the new classification and measurement model under SB-FRS 109.

The Group has commenced its preliminary assessment of the classification and measurement of its financial assets and liabilities, and does not expect any significant changes to the classification and measurement of its financial assets and liabilities currently measured at amortised cost upon adoption of the standard.

Impairment

SB-FRS 109 introduces a new forward-looking impairment model based on expected credit losses to replace the incurred loss model in SB-FRS 39. This determines the recognition of impairment provisions as well as interest revenue. For financial assets at amortised cost, the standard requires recognition of (at a minimum) 12 months of expected losses in profit or loss. Lifetime expected losses will be recognised on these assets when there is a significant increase in credit risk after initial recognition.

The new impairment requirements are expected to result in changes to and likely increases in impairment loss allowances on trade and other receivables, due to earlier recognition of credit losses. The Group expects to adopt the simplified model for its trade debtors and will record an allowance for lifetime expected losses from initial recognition. For other receivables, the Group will initially provide for 12 months expected losses under the three-stage model. The Group is still in the process of determining how it will estimate expected credit losses and the sources of forward-looking data.

SB-FRS 115 Revenue from Contracts with Customers

SB-FRS 115 introduces a comprehensive model that applies to revenue from contracts with customers and supersedes all existing revenue recognition requirements under SB-FRS. The model features a five-step analysis to determine whether, how much and when revenue is recognised, and two approaches for recognising revenue: at a point in time or over time. The core principle is that an entity recognises revenue when control over promised goods or services is transferred to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. SB-FRS 115 also introduces extensive qualitative and quantitative disclosure requirements which aim to enable users of the financial statements to understand the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers

The Group has performed a preliminary assessment and does not identify any potential impact on the timing and pattern of revenue recognition under SB-FRS. The Group expects to continue to recognise its existing income streams per its income recognition accounting policies as described in Note 2.13.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

2. Summary of significant accounting policies (Continued)

2.1 Basis of preparation (Continued)

SB-FRS issued but not yet effective (Continued)

SB-FRS 115 Revenue from Contracts with Customers (Continued)

The Group plans to adopt the standard in the financial year beginning on 1 April 2018 with full or modified retrospective in accordance with the transitional provisions, and will include the required additional disclosures in its financial statements for that financial year.

SB-FRS 116 Leases

SB-FRS 116 supersedes SB-FRS 17 Leases and introduces a new single lessee accounting model which eliminates the current distinction between operating and finance leases for lessees. SB-FRS 116 requires lessees to capitalise all leases on the statement of financial position by recognising a 'right-of-use' asset and a corresponding lease liability for the present value of the obligation to make lease payments, except for certain short-term leases and leases of low-value assets. Subsequently, the lease assets will be depreciated and the lease liabilities will be measured at amortised cost.

From the perspective of a lessor, the classification and accounting for operating and finance leases remains substantially unchanged under SB-FRS 116. SB-FRS 116 also requires enhanced disclosures by both lessees and lessors.

On initial adoption of SB-FRS 116, there may be a potentially significant impact on the accounting treatment for leases, which the Group as lessee currently accounts for as operating leases. On adoption of FRS 116, the Group will be required to capitalise its rented office premises and office equipment on the statement of financial position by recognising them as 'right-of-use' assets and their corresponding lease liabilities for the present value of future lease payments. The Group plans to adopt the standard in the financial year beginning on [1 April 2019 using the modified retrospective method in accordance with the transitional provisions, and will include the required additional disclosures in its financial statements for that financial year.

SB-FRS 1001 Accounting and Disclosure for Non-Exchange Revenue

SB-FRS 1001 specifies the financial reporting requirement for recognition, measurement and disclosure of non-exchange revenue received by Statutory Boards (SBs). Revenue is recognised when the SB obtains control of the resources or has an enforceable claims to the resources and shall initially be measured at its fair value at the date of acquisition. SBs are required to disclose sufficient information to enable users of financials statements to understand the nature, amount, timing and uncertainty of revenue and cash flows arising from non-exchange revenue. Some examples of non-exchange revenue are taxes, levies, fines, penalties and donations.

The Group has performed a preliminary assessment and does not identify any potential impact on the current accounting treatment for non-exchange revenue. The Group is still in the process of making a detailed assessment of the implementation of SB-FRS 1001 and plans to adopt the standards in the financial year beginning on 1 April 2018.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

2. Summary of significant accounting policies (Continued)

2.2 Functional and presentation currency

Items included in the financial statements of each entity in the Group are measured using the currency that best reflects the economic substance of the underlying events and circumstances relevant to that entity (the functional currency). The consolidated financial statements of the Group and the financial statements of the Authority are presented in Singapore dollars, which is also the functional currency of the Authority.

2.3 Basis of consolidation

The consolidated financial statements comprise the financial statements of the Authority and its subsidiary as at the end of the reporting period. The financial statements of the subsidiary used in the preparation of the consolidated financial statements are prepared for the same reporting date as the Authority. Consistent accounting policies are applied to like transactions and events in similar circumstances.

All intra-group balances, income and expenses and unrealised gains and losses resulting from intra-group transactions and dividends are eliminated in full.

Subsidiary is consolidated from the date of acquisition, being the date on which the Group obtains control, and continues to be consolidated until the date that such control ceases.

Losses within a subsidiary are attributed to the non-controlling interest even if that results in a deficit balance.

A change in the ownership interest of a subsidiary, without a loss of control, is accounted for as an equity transaction. If the Group loses control over a subsidiary, it:

- de-recognises the assets (including goodwill) and liabilities of the subsidiary at their carrying amounts at the date when controls is lost;
- de-recognises the carrying amount of any non-controlling interest;
- de-recognises the cumulative translation differences recorded in equity;
- recognises the fair value of the consideration received;
- recognises the fair value of any investment retained;
- recognises any surplus or deficit in profit or loss;
- re-classifies the Group's share of components previously recognised in other comprehensive income to profit or loss or retained earnings, as appropriate.

2.4 Property, plant and equipment and depreciation

Property, plant and equipment are stated at cost less accumulated depreciation and impairment losses, if any.

Recognition and measurement

All items of property, plant and equipment are initially recorded at cost. Subsequent to recognition, property, plant and equipment are measured at cost less accumulated depreciation and any accumulated impairment losses. The cost includes the cost of replacing part of the property, plant and equipment and borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying property, plant and equipment. The

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

2. Summary of significant accounting policies (Continued)

2.4 Property, plant and equipment and depreciation (Continued)

Recognition and measurement (Continued)

cost of an item of property, plant and equipment is recognised as an asset if, and only if, it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably.

Subsequent cost

When significant parts of property, plant and equipment are required to be replaced in intervals, the Group recognises such parts as individual assets with specific useful lives and depreciation, respectively. Likewise, when a major inspection is performed, its cost is recognised in the carrying amount of the property, plant and equipment as a replacement if the recognition criteria are satisfied. All other repair and maintenance costs are recognised in profit or loss as incurred.

Depreciation

Depreciation is computed utilising the straight-line method to write off the cost of the assets over their estimated useful lives as follows:

	<u>Years</u>
Leasehold land and buildings	10 - 30 (over the period of the lease)
Motor vehicles and vessels	10
Mechanical and electrical equipment	10
Furniture and fittings	5 - 8
Laboratory tools and equipment	8
IT equipment	3 - 8

No depreciation is provided on development work-in-progress. Development work-in-progress is transferred to the various categories of property, plant and equipment and depreciated upon the completion of the development project.

The carrying values of property, plant and equipment are reviewed for impairment when events or changes in circumstances indicate that the carrying value may not be recoverable.

Depreciation methods, useful lives and residual values are reviewed, and adjusted as appropriate, at each reporting date as a change in estimates.

For acquisitions and disposals during the financial year, depreciation is provided from the month of acquisition and to the month before disposal respectively. Fully depreciated assets are retained in the financial statements until they are no longer in use.

An item of property, plant and equipment is derecognised upon disposal or when no future economic benefits are expected from its use or disposal. Any gain or loss on de-recognition of the asset is included in profit or loss in the year the asset is derecognised

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

2. Summary of significant accounting policies (Continued)

2.5 Subsidiary

A subsidiary is an entity that is controlled by the Group. The Group controls an entity when it is exposed, or has rights, to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity.

In the Authority's separate financial statements, shares in the subsidiary are stated at cost less allowance for any impairment loss on an individual subsidiary basis.

2.6 Impairment of non-financial assets

The Group assesses at each reporting date whether there is an indication that an asset may be impaired. If any indication exists, or when an annual impairment testing for an asset is required, the Group makes an estimate of the asset's recoverable amount.

An asset's recoverable amount is the higher of an asset's or cash-generating unit's fair value less costs of disposal and its value in use and is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets. Where the carrying amount of an asset or cash-generating unit exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount.

Impairment losses of continuing operations are recognised in profit or loss, except for assets that are previously revalued where the revaluation was taken to other comprehensive income. In this case, the impairment is also recognised in other comprehensive income up to the amount of any previous revaluation.

A previously recognised impairment loss is reversed only if there has been a change in the estimates used to determine the asset's recoverable amount since the last impairment loss was recognised. If that is the case, the carrying amount of the asset is increased to its recoverable amount. That increase cannot exceed the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognised previously. Such reversal is recognised in profit or loss unless the asset is measured at revalued amount, in which case the reversal is treated as a revaluation increase.

2.7 Financial instruments

(a) *Financial assets*

Initial recognition and measurement

Financial assets are recognised when, and only when, the Group becomes a party to the contractual provisions of the financial instrument. The Group determines the classification of its financial assets at initial recognition.

When financial assets are recognised initially, they are measured at fair value, plus, directly attributable transaction costs.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

2. Summary of significant accounting policies (Continued)

2.7 Financial instruments (Continued)

(a) *Financial assets (Continued)*

Subsequent measurement

Non-derivative financial assets with fixed or determinable payments that are not quoted in an active market are classified as loans and receivables. Subsequent to initial recognition, loans and receivables are measured at amortised cost using the effective interest method, less impairment. Gains and losses are recognised in profit or loss when the loans and receivables are derecognised or impaired, and through the amortisation process.

Loans and receivables comprise cash and cash equivalents and trade and other receivables.

De-recognition

A financial asset is derecognised when the contractual right to receive cash flows from the asset has expired, or when it transfers the rights to receive the contractual cash flows on the financial asset in a transaction in which substantially all the risks and rewards of ownership of the financial asset are transferred. Any interest in transferred financial assets that is created or retained by the Group is recognised as a separate asset or liability. On de-recognition of a financial asset in its entirety, the difference between the carrying amount and the sum of the consideration received and any cumulative gain or loss that had been recognised in other comprehensive income is recognised in profit or loss.

(b) *Financial liabilities*

Initial recognition and measurement

Financial liabilities are recognised when, and only when, the Group becomes a party to the contractual provisions of the financial instrument. The Group determines the classification of its financial liabilities at initial recognition.

All financial liabilities are recognised initially at fair value net of directly attributable transaction costs.

Subsequent measurement

After initial recognition, financial liabilities that are not carried at fair value through profit or loss are subsequently measured at amortised cost using the effective interest rate method. Gains and losses are recognised in profit or loss when the liabilities are derecognised, and through the amortisation process.

De-recognition

A financial liability is derecognised when the obligation under the liability is discharged or cancelled or expired. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as a de-recognition of the original liability and the recognition of a new liability, and the difference in the respective carrying amounts is recognised in profit or loss.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

2. Summary of significant accounting policies (Continued)

2.8 Impairment of financial assets

The Group also assesses at each reporting date whether a financial asset or a group of financial assets is impaired.

Financial assets carried at amortised cost

For financial assets carried at amortised cost, the Group first assesses whether objective evidence of impairment exists individually for financial assets that are individually significant, or collectively for financial assets that are not individually significant.

If the Group determines that no objective evidence of impairment exists for an individually assessed financial asset, whether significant or not, it includes the asset in a group of financial assets with similar credit risk characteristics and collectively assesses them for impairment. Assets that are individually assessed for impairment and for which an impairment loss is, or continues to be recognised are not included in a collective assessment of impairment.

If there is objective evidence that an impairment loss on financial assets carried at amortised cost has been incurred, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows (excluding future credit losses that have not been incurred) discounted at the financial asset's original effective interest rate. The carrying amount of the asset is reduced either directly or through use of an allowance account. The impairment loss is recognised in the profit or loss account.

When the asset becomes uncollectible, the carrying amount of impaired financial assets is reduced directly or if an amount was charged to the allowance account, the amounts charged to the allowance account are written off against the carrying value of the financial asset.

To determine whether there is objective evidence that an impairment loss on financial assets has been incurred, the Group considers factors such as the probability of insolvency or significant financial difficulties of the debtor and default or significant delay in payments.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised, the previously recognised impairment is reversed to the extent that the carrying amount of the asset does not exceed its amortised cost at the reversal date. The amount of reversal is recognised in the profit or loss.

2.9 Cash and cash equivalents

Cash and cash equivalents comprise cash and bank balances with banks; and cash with the Accountant-General's Department ("AGD"). Cash with AGD refers to cash that is managed by AGD under Cash Liquidity Management ("CLM") as set out in the Accountant-General's Circular No. 4/2009 Centralised Liquidity Management for Statutory Boards and Ministries.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

2. Summary of significant accounting policies (Continued)

2.10 Provisions

Provisions are recognised when the Authority and the Group have a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation, and a reliable estimate of the amount can be made.

The Authority and the Group review the provisions annually and where in their opinion, the provision is inadequate or excessive, due adjustment is made.

2.11 Share capital

Shares are issued to the Minister for Finance ("MOF"), the body incorporated by the Minister for Finance (Incorporation) Act, for all equity financing received from the Government. The shares issued are classified as equity and are valued at the considerations received for the issuance of the shares.

2.12 Dividends

Dividends proposed by the Authority are not accounted for in capital and reserves as an appropriation of accumulated surplus, until they have been declared by the Authority. When these dividends have been declared and approved by the Authority, they are recognised as a liability.

2.13 Income

Income is recognised to the extent that it is probable that the economic benefits will flow to the Group and the income can be reliably measured, regardless of when the payment is made. Income is measured at the fair value of consideration received or receivable, taking into account contractually defined terms of payment and excluding taxes or duty. The following specific recognition criteria must also be met before income is recognised:

- (a) Certificate and permit fees are recognised as income when certificate or permits are issued.
- (b) Licence fees are recognised as income on time proportion basis.
- (c) Income from the rendering of services which comprises berthing fees, laboratory fees and inspection fees, is recognised when the service is rendered.
- (d) Rental and conservancy charges and vehicle entry fees are recognised as income on a straight-line basis over the period of the lease.
- (e) Interest income is recognised on a time proportion basis using the effective interest method.
- (f) Other income comprises mainly fines which are accounted for when received.
- (g) Deferred income relates to annual licence fees received in advance from licensees and is recognised in the profit or loss over the remaining period of the licences.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

2. Summary of significant accounting policies (Continued)

2.14 Grants

Government grants and contributions from other parties utilised for the purchase or construction of property, plant and equipment are taken to the Deferred Capital Grants Account.

Non-monetary grants related to assets are taken at their fair values to the Deferred Capital Grants Account.

Deferred capital grants are recognised in the profit or loss over the periods necessary to match the depreciation of the assets purchased or received with the related grants. On disposal of the property, plant and equipment, the balance of the related grants is taken to the profit or loss to match the net book value of the property, plant and equipment disposed.

Grants and contributions received for the purchase or construction of property, plant and equipment but which are not yet utilised are taken to the Capital Grants Received in Advance Account.

Operating grants whose purpose is to meet the current financial year's operating expenses are recognised as income in the same financial year.

Grants are recognised only when there is reasonable assurance that the Authority would comply with the conditions attaching to those grants, and the grants would be received.

2.15 Employee benefits

(i) Short-term employee benefits

Salaries and bonuses are recognised when the services giving rise to the payment obligation have been satisfactorily rendered by the employees.

(ii) Defined contribution plans

The Authority and the Group contribute to the Central Provident Fund (CPF), a defined contribution plan regulated and managed by the Government of Singapore, which applies to the majority of the employees. The contributions to CPF are charged to the profit or loss in the period in which the related service is performed.

(iii) Employee leave entitlements

Employee entitlements to annual leave are recognised when they accrue to employees. Accrual is made for the unconsumed leave as a result of services rendered by employees up to the end of the reporting period.

(iv) Defined benefit plans

The net defined benefit liability or asset is the aggregate of the present value of the defined benefit obligation (derived using a discount rate) at the end of the reporting period.

The cost of providing benefits under the defined benefit plans is determined separately for each plan using the projected unit credit method.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

2. Summary of significant accounting policies (Continued)

2.15 Employee benefits (Continued)

(iv) Defined benefit plans (Continued)

Defined benefit costs comprise the following:

- Service cost
- Net interest on the defined benefit liability
- Re-measurements of defined benefit liability

Service costs which include current service costs, past service costs and gains or losses on non-routine settlements are recognised as expense in profit or loss. Past service costs are recognised when plan amendment or curtailment occurs.

Net interest on the defined benefit liability is the change during the period in the defined benefit liability that arises from the passage of time which is determined by applying the discount rate to the defined benefit liability. Interest on the defined benefit liability is recognised as expense or income in profit or loss.

Re-measurements comprising actuarial gains and losses are recognised immediately in other comprehensive income in the period in which they arise. Re-measurements are recognised in retained earnings within equity and are not reclassified to profit or loss in subsequent periods.

2.16 Leases

Operating leases - lessee

Leases of assets in which a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) are taken to the profit or loss on a straight-line basis over the period of the lease.

When an operating lease is terminated before the lease period has expired, any payment required to be made to the lessor by way of penalty is recognised as an expense in the period in which termination takes place.

Operating leases - lessor

Assets leased out under operating leases are included in land and building and are stated at cost. Rental income (net of any incentives given to lessees) is recognised on a straight-line basis over the lease term.

2.17 Contribution to consolidated fund

The contribution to the Consolidated Fund is required under Section 3(a) of the Statutory Corporations (Contributions to Consolidated Fund) Act (Cap.319A). The contribution rate and the framework governing such contributions are determined by the Ministry of Finance.

Accounting surplus would be used for the purpose of computing the contribution and the contribution is accounted for on an accrual basis.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

2. Summary of significant accounting policies (Continued)

2.18 Income tax

(a) Current income tax

Current tax assets and liabilities for the current period are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted by the date of the statement of financial position.

Current taxes are recognised in the statement of comprehensive income except that tax relating to items recognised directly in equity is recognised directly in equity.

(b) Deferred tax

Deferred income tax is provided using the liability method on temporary differences at the date of the statement of financial position between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes.

Deferred tax assets and liabilities are recognised for all temporary differences, except where the deferred tax arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction affects neither the accounting profit nor taxable profit or loss.

The carrying amount of deferred tax assets is reviewed at each date of the statement of financial position and reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow all or part of the deferred income tax asset to be utilised. Unrecognised deferred tax assets are reassessed at each date of the statement of financial position and are recognised to the extent that it has become probable that future taxable profit will allow the deferred tax asset to be utilised.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the year when the asset is realised or the liability is settled, based on tax rates and tax laws that have been enacted or substantively enacted at the date of the statement of financial position.

(c) Goods and services tax ("GST")

Revenues, expenses and assets are recognised net of the amount of goods and services tax except:

- Where the goods and services tax incurred in a purchase of assets or services is not recoverable from the taxation authority, in which case the goods and services tax is recognised as part of the cost of acquisition of the asset or as part of the expense item as applicable; and
- Receivables and payables that are stated with the amount of goods and services tax included.

The net amount of goods and services tax recoverable from, or payable to, the taxation authority is included as part of receivables or payables in the statement of financial position.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

3. Critical accounting judgements and key sources of estimation uncertainty

The preparation of the Group and Authority's financial statements requires management to make judgements, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, and the disclosure of contingent liabilities at the end of each reporting period. However, uncertainty about these assumptions and estimates could result in outcomes that could require a material adjustment to the carrying amount of the asset or liability affected in the future periods.

The key assumptions concerning the future and other key sources of estimation uncertainty at the end of each reporting period, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are described below.

(i) Depreciation of property, plant and equipment

Property, plant and equipment are depreciated on a straight-line basis over their estimated useful lives. Management estimates the useful lives of these property, plant and equipment to be within 3 - 30 years. The carrying amount of the Authority and Group's property, plant and equipment as at 31 March 2017 is \$107,379,216 (FY15/16: \$110,926,507). Changes in the expected level of usage and technological developments could impact the economic useful lives and the residual values of these assets, therefore future depreciation charges could be revised.

(ii) Provision for pension benefits

The cost of defined benefit pension plans as well as the present value of the pension obligation are determined using actuarial valuations. The actuarial valuation involves making various assumptions. These include the determination of the discount rates, future salary increases and mortality rates. Due to the complexity of the valuation, the underlying assumptions and its long-term nature, defined benefit obligations are highly sensitive to changes in these assumptions. All assumptions are reviewed on a yearly basis. The net benefit liability as at 31 March 2017 is \$7,473,082 (FY15/16: \$7,361,559).

In determining the appropriate discount rate, management considers the market yields on government bond as Singapore is not considered to be a country with deep corporate bond market.

The mortality rate is based on publicly available mortality tables for Singapore. Future salary increases are based on historical data.

Further details about the assumptions used are disclosed in Note 11.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

4. Capital account

Share capital

	The Authority and the Group			
	FY16/17		FY15/16	
	No. of shares	\$	No. of shares	\$
At beginning of the financial year	1,439,156	1,439,156	1,000	1,000
Equity injection for the year	7,370,611	7,370,611	1,438,156	1,438,156
At end of the financial year	8,809,767	8,809,767	1,439,156	1,439,156

In November 2008, the Ministry of Finance implemented the Capital Management Framework which aims to sensitise Statutory Boards to the opportunity cost of capital utilised by the Statutory Boards to perform their functions. Under this framework, the Authority issued share certificates to the Minister for Finance, a body incorporated by the Minister for Finance (Incorporation) Act (Cap. 183, 1985 Revised Edition) on 6 March 2009 for 1,000 shares for a consideration of \$1,000. The shares carry neither voting rights nor par value.

During the financial year, \$7,370,611 (FY15/16: \$1,438,156) was injected into the Authority for project funding. The recognition of equity injection is based on the accounting policy of the Authority as stated in Note 2.11.

Dividend

In accordance with the Capital Management Framework for Statutory Board, the Authority declared and paid a dividend of \$4,583,000 for the financial year ended 31 March 2017 (FY15/16: \$Nil).

NOTES TO THE FINANCIAL STATEMENTS
FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

5. Property, plant and equipment

	Leasehold land and buildings	Motor vehicles and vessels	Mechanical and electrical equipment	Furniture and fittings	Laboratory tools and equipment	IT equipment	Development work-in-progress	Total
The Authority & Group Cost	\$	\$	\$	\$	\$	\$	\$	\$
At 1 April 2015	185,248,146	3,633,109	19,073,719	12,385,225	41,831,896	7,317,194	9,482,032	278,971,321
Additions	-	309,343	129,950	3,225	2,900,803	411,882	3,954,930	7,710,133
Disposals/written off	-	(292,652)	(90,487)	(760,261)	(765,495)	(108,501)	(3,951,272)	(5,968,668)
Transfers	1,774,965	-	324,893	(3,096,387)	273,267	6,122,735	(5,399,473)	-
At 31 March 2016 and 1 April 2016	187,023,111	3,649,800	19,438,075	8,531,802	44,240,471	13,743,310	4,086,217	280,712,786
Additions	-	25,815	67,820	-	775,477	-	8,324,758	9,193,870
Disposals/written off	(17,638)	(150,719)	(26,905)	(96,640)	(599,454)	(691,629)	(17,000)	(1,599,985)
Transfers	8,650,742	-	-	-	485,658	-	(9,136,400)	-
At 31 March 2017	195,656,215	3,524,896	19,478,990	8,435,162	44,902,152	13,051,681	3,257,575	288,306,671
Accumulated depreciation								
At 1 April 2015	96,218,851	2,305,271	17,585,568	5,122,381	31,217,037	5,827,872	-	158,276,980
Depreciation for the year	6,772,272	337,642	297,383	1,533,110	2,881,990	1,261,407	-	13,083,804
Disposals/written off	-	(292,653)	(89,493)	(321,755)	(762,103)	(108,501)	-	(1,574,505)
Transfers	-	-	-	(943,510)	-	943,510	-	-
At 31 March 2016 and 1 April 2016	102,991,123	2,350,260	17,793,458	5,390,226	33,336,924	7,924,288	-	169,786,279
Depreciation for the year	6,817,788	340,530	264,001	776,059	2,778,620	1,728,059	-	12,705,057
Disposals/written off	(8,746)	(150,719)	(26,634)	(87,298)	(598,855)	(691,629)	-	(1,563,881)
At 31 March 2017	109,800,165	2,540,071	18,030,825	6,078,987	35,516,689	8,960,718	-	180,927,455
Net book value								
At 31 March 2017	85,856,050	984,825	1,448,165	2,356,175	9,385,463	4,090,963	3,257,575	107,379,216
At 31 March 2016	84,031,988	1,299,540	1,644,617	3,141,576	10,903,547	5,819,022	4,086,217	110,926,507

During the year, assets classified as development work-in-progress amounting to \$nil (FY15/16:\$3,850,243) was transferred to the Ministry of National Development.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

6. Subsidiary

	The Authority	
	FY16/17	FY15/16
	\$	\$
Unquoted equity shares, at cost	2	2

The subsidiary, which is incorporated in Singapore, is as follows:

Name of company	Principal activity	Equity interest	
		FY16/17	FY15/16
		%	%
Agrifood Technologies Pte Ltd	Consultancy services	100	100

The financial statements of the subsidiary are audited by S. S. Ang & Co.

7. Trade and other receivables

	The Authority		The Group	
	FY16/17	FY15/16	FY16/17	FY15/16
	\$	\$	\$	\$
Trade receivables	1,294,528	1,760,244	1,385,208	1,872,984
Less: Allowance for impairment (Note 23)	(75,331)	(44,823)	(156,331)	(44,823)
Net trade receivables	1,219,197	1,715,421	1,228,877	1,828,161
Other receivables	540,759	772,278	541,543	772,278
Total trade and other receivables	1,759,956	2,487,699	1,770,420	2,600,439
Add: Cash and cash equivalents (Note 8)	87,508,657	68,253,826	87,855,315	68,617,406
Total loans and receivables	89,268,613	70,741,525	89,625,735	71,217,845

Trade receivables are non-interest bearing and are generally on 30 days (FY15/16: 30 days) terms. They are recognised at their original invoice amounts which represent their fair values on initial recognition.

Other receivables are unsecured, interest-free and repayable on demand.

8. Cash and cash equivalents

	The Authority		The Group	
	FY16/17	FY15/16	FY16/17	FY15/16
	\$	\$	\$	\$
Cash and bank balances	87,508,657	68,253,826	87,543,909	68,311,093
Fixed deposits with financial institutions	-	-	311,406	306,313
	87,508,657	68,253,826	87,855,315	68,617,406

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

8. Cash and cash equivalents (Continued)

Cash and bank balances include \$87,079,451 (FY15/16: \$68,355,538) of cash held with Accountant General's Department ("AGD"). All Statutory Boards and Ministries are required to participate in the Centralised Liquidity Management ("CLM"), whereby the AGD will centrally manage the cash of Statutory Boards and Ministries to achieve greater efficiency. The Authority participated in the CLM with effect from 3 December 2009. The average effective interest rate of the cash with the AGD as at 31 March 2017 was 1.37% (FY15/16: 1.21%) per annum.

9. Trade and other payables

	The Authority		The Group	
	FY16/17	FY15/16	FY16/17	FY15/16
	\$	\$	\$	\$
Trade payables	4,236,216	8,787,993	4,265,907	8,821,773
Amount payable with respect to capital expenditure	802,279	3,316	802,279	3,316
Accrued operating expenses	16,082,129	11,991,093	16,082,129	11,991,093
Total trade and other payables	21,120,624	20,782,402	21,150,315	20,816,182
<i>Add:</i>				
Amount due to Government	94,376	13,888	94,376	13,888
Rental, security and other deposits	2,666,657	2,646,291	2,666,657	2,646,291
Total financial liabilities	23,881,657	23,442,581	23,911,348	23,476,361

Trade payables are non-interest bearing and normally settled on 30-day terms (FY15/16: 30-day terms).

10. Capital and other grants received in advance

	The Authority and the Group	
	FY16/17	FY15/16
	\$	\$
Balance at the beginning of the financial year	(132,526)	1,160,001
Received/receivable during the financial year	1,199,660	1,035,328
Transfer to Deferred capital grants (Note 12)	(27,891)	(2,174,255)
Transfer to statement of comprehensive income	(712,532)	(153,600)
Return of grant	(1,967)	-
Balance at the end of the financial year	324,744	(132,526)

During the year, the Authority received and paid \$3,869,443 (FY15/16: \$11,771,026) to government agencies and private companies in relation to several development projects.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

11. Pension benefits

The Authority operates a defined benefit scheme for certain employees under the provisions of the Pension Act (Chapter. 225, 2004 Revised Edition). Defined retirement benefit obligations due to pensionable officers are recognised in the statements of financial position in accordance with the Pensions Act (Chapter 225, 2004 Revised Edition). The pension liability is determined based on the last drawn salaries of the respective pensionable officers and the pensionable officers' cumulative service period served with the Authority at the time of retirement, assuming that all pensionable officers work till the age of 60 years and opt for fully commuted gratuity on retirement. The Authority does not need to bear any medical liabilities for pensionable officers upon their retirement.

The following tables summarise the components of benefit expense recognised in the income statement and the amounts recognised in the statements of financial position for the plan:

	The Authority and the Group	
	FY16/17	FY15/16
	\$	\$
Current service cost	184,594	119,261
Interest cost on benefit obligation	102,085	115,884
	<u>286,679</u>	<u>235,145</u>

Changes in the present value of the defined benefit obligation are as follows:

	The Authority and the Group	
	FY16/17	FY15/16
	\$	\$
Balance at the beginning of the financial year	7,361,559	8,008,703
Interest cost (Note 14)	102,085	115,884
Current service cost (Note 14)	184,594	119,261
Actuarial loss/(gain) on valuation	5,545	(345,175)
Payments during the financial year	(180,701)	(537,114)
Balance at the end of the financial year	<u>7,473,082</u>	<u>7,361,559</u>

The provision for pension benefits is payable as follows:

	The Authority and the Group	
	FY16/17	FY15/16
	\$	\$
Within one year	1,809,468	1,913,566
After one year	5,663,614	5,447,993
	<u>7,473,082</u>	<u>7,361,559</u>

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

11. Pension benefits (Continued)

The actuarial valuation of the present value of the defined benefit obligation was carried out as at 31 March 2017 by a qualified independent actuary using the projected unit credit method in accordance to SB-FRS 19.

The actuarial assumptions used in computing the pension benefits are:

	FY16/17	FY15/16
Discount rate	Active employees - 1.02% per annum Retirees - 2.28% per annum	Active employees - 0.81% per annum Retirees - 1.92% per annum
Salary inflation	2.00% per annum	2.00% per annum
Mortality rate	S0408 Singapore mortality table	S0408 Singapore mortality table
Retirement age	60 years old	60 years old

The sensitivity analysis below has been determined based on reasonably possible changes of each significant assumption on the defined benefit obligation as of the end of the reporting period, assuming if all other assumptions were held constant:

	Change in assumption	Impact on defined obligation	
		Increase in assumption	Decrease in assumption
Discount rates			
- Active employees	0.25%	(22,053)	22,756
- Retirees	0.25%	(109,533)	114,466
Future salary increases			
- Active employees	0.25%	14,974	(14,916)
- Retirees	0.25%	-	-
Mortality rates			
- Active employees	10%	(8,342)	9,072
- Retirees	10%	(111,769)	121,433

The Authority's defined benefit pension plans are funded by the Authority.

The Authority expects to contribute \$271,835 (FY15/16: \$286,679) to the defined benefit pension plans for the upcoming financial year ending 31 March 2018.

The average duration of the defined benefit obligation at the end of the reporting period is 4 years (FY15/16: 5 years).

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

12. Deferred capital grants

	The Authority and the Group	
	FY16/17	FY15/16
	\$	\$
<i>Government grants</i>		
Balance at beginning of the financial year	108,019,224	118,996,228
Transfer from capital grants (Note 10)	27,891	2,174,255
Transfer from operating grants (Note 16)	1,880,785	4,089,825
Asset transfer to MND (Note 5)	-	(3,850,243)
	<u>109,927,900</u>	<u>121,410,065</u>
Grants taken to statement of comprehensive income		
- to match depreciation	(12,484,384)	(12,878,444)
- to match disposals	(19,104)	(4,387)
- to match capital items expensed-off	(17,000)	(508,010)
	<u>(12,520,488)</u>	<u>(13,390,841)</u>
Balance at the end of the financial year	<u>97,407,412</u>	<u>108,019,224</u>

13. MFRD fund

This fund was transferred to the Authority on 1 April 2009 to be held in trust for activities undertaken by the Marine Fisheries Research Department ("MFRD")/Southeast Asian Fisheries Development Centre ("SEAFDEC") in Singapore.

The assets and liabilities of the fund are as follows:

	The Authority and the Group			
	FY16/17		FY15/16	
	S\$	US\$	S\$	US\$
ACCUMULATED SURPLUS	<u>121,484</u>	<u>87,079</u>	<u>129,047</u>	<u>95,428</u>
Represented by:				
CURRENT ASSETS				
Cash and bank balances	11,091	7,950	19,015	14,061
Fixed deposits	110,393	79,129	110,032	81,367
	<u>121,484</u>	<u>87,079</u>	<u>129,047</u>	<u>95,428</u>
Net current assets, representing net assets	<u>121,484</u>	<u>87,079</u>	<u>129,047</u>	<u>95,428</u>

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

13. MFRD fund (Continued)

The income and expenditure of the fund for the years ended 31 March 2017 and 2016 are as follows:

	The Authority and the Group			
	FY16/17		FY15/16	
	S\$	US\$	S\$	US\$
INCOME				
Interest from fixed deposits	361	259	743	550
Less:				
EXPENDITURE				
General and administrative expenses	7,924	5,680	85,248	63,038
	<u>(7,563)</u>	<u>(5,421)</u>	<u>(84,505)</u>	<u>(62,488)</u>

Note:

For purpose of making references to financial statements of other departments of SEAFDEC, items in the income and expenditure and assets and liabilities had been translated to United States dollar ("US\$") at the exchange rate prevailing at balance sheet date of US\$1 = S\$1.3951 (31 March 2016: US\$1 = S\$1.3523).

14. Staff costs

	The Authority		The Group	
	FY16/17	FY15/16	FY16/17	FY15/16
	\$	\$	\$	\$
Salaries, allowances and bonus	71,498,050	68,777,709	71,498,050	68,777,709
Central Provident Fund contributions	8,727,853	7,901,507	8,727,853	7,901,507
Pension benefits (Note 11)	286,679	235,145	286,679	235,145
Other staff costs	5,851,985	5,704,484	5,849,785	5,703,604
	<u>86,364,567</u>	<u>82,618,845</u>	<u>86,362,367</u>	<u>82,617,965</u>

The Authority and the Group

	FY16/17	FY15/16
	\$	\$
	Staff costs include key management remuneration as follows:	
Short term employee benefits	5,799,743	4,633,431
Post-employment benefits	213,398	135,978
	<u>6,013,141</u>	<u>4,769,409</u>

Key management refers to the leadership team who have the authority and responsibility for planning, directing and controlling the activities of the Authority.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

15. General and administrative expenses

	The Authority		The Group	
	FY16/17	FY15/16	FY16/17	FY15/16
	\$	\$	\$	\$
Transport and travel	803,342	749,495	823,534	771,078
Office supplies	683,460	832,855	683,942	833,191
Laboratory supplies	3,470,065	3,247,488	3,470,065	3,247,488
Utilities	2,056,941	2,189,527	2,056,941	2,189,527
Rental - operating leases	7,424,928	7,429,842	7,427,832	7,431,872
Rental - others	9,821	14,313	9,821	14,313
Maintenance of office premises	6,831,636	7,449,404	6,831,636	7,449,404
Maintenance of information systems	10,562,704	9,453,716	10,562,704	9,453,716
Maintenance of office and laboratory equipment	2,144,879	2,124,239	2,144,879	2,124,239
Auditors' remuneration	59,500	79,000	62,200	81,200
Laboratory fees	6,545,215	6,551,982	6,545,215	6,551,982
Public education	1,232,628	1,294,447	1,232,628	1,294,447
Professional fees	613,610	619,576	631,314	735,578
Estate management fee	3,757,087	3,674,466	3,757,087	3,674,466
Board honorarium	123,750	132,341	139,666	149,221
Goods and services tax	3,702,443	3,870,005	3,702,443	3,870,005
Security services	2,008,865	1,774,349	2,008,865	1,774,349
HPAI expenditure	423,821	441,330	423,821	441,330
Property tax	1,406,382	1,451,500	1,406,382	1,451,500
Food fund	6,023,239	5,377,055	6,023,239	5,377,055
Payment to international organisations	2,809,091	2,807,293	2,809,091	2,807,293
Property, plant and equipment written off	17,000	539,534	17,000	539,534
Other operating expenses	13,701,282	13,744,327	13,790,015	13,749,215
	<u>76,411,689</u>	<u>75,848,084</u>	<u>76,560,320</u>	<u>76,012,003</u>

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

16. Operating grants

	The Authority and the Group	
	FY16/17	FY15/16
	\$	\$
Received/receivable during the financial year	130,399,711	131,201,755
Transfer to deferred capital grants (Note 12)	(1,880,785)	(4,089,825)
Transfer to statement of comprehensive income	<u>128,518,926</u>	<u>127,111,930</u>

17. Total government grants

Total grants received/receivable from the Government since the establishment of the Authority are as follows:

	The Authority and the Group	
	FY16/17	FY15/16
	\$	\$
Capital and other grants	301,073,480	299,873,820
Operating grants	1,300,178,610	1,169,778,899
	<u>1,601,252,090</u>	<u>1,469,652,719</u>

18. Contribution to consolidated fund

The contribution to the Consolidated Fund is required under section 3(a) of the Statutory Corporations (Contributions to Consolidated Fund) Act (Cap. 319A). The contribution rate and the framework governing such contributions are determined by the Ministry of Finance.

The contribution is based on 17% (FY15/16: 17%) of the surplus for the year.

	The Authority and the Group	
	FY16/17	FY15/16
	\$	\$
Current year provision	566,892	949,415
Over provision from prior year	-	(1)
	<u>566,892</u>	<u>949,414</u>

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

19. Income tax expense

The major components of income tax expense for the years ended 31 March 2017 and 2016 are:

	The Group	
	FY16/17	FY15/16
	\$	\$
Current income tax expense	-	-
(Over)/ under provision in respect of prior years	(204)	46
	<u>(204)</u>	<u>46</u>

A reconciliation between tax expense and the product of accounting profit multiplied by the applicable corporate tax rate for the years ended 31 March 2017 and 2016 are as follows:

	The Group	
	FY16/17	FY15/16
	\$	\$
Surplus before contribution to Consolidated Fund and taxation	3,216,565	5,573,813
Less: The Authority's surplus before contribution to Consolidated Fund and income tax expense	3,334,658	5,584,794
The subsidiary's deficit before income tax expense	<u>(118,093)</u>	<u>(10,981)</u>
Income tax at statutory rate of 17% (FY15/16: 17%)	(20,076)	(1,867)
Non-deductible expenses	-	112
Deferred tax assets not recognised	20,076	1,755
(Over)/Under provision of income tax expense in respect of prior years	(204)	46
	<u>(204)</u>	<u>46</u>

As at 31 March 2017, the Group has unabsorbed losses of approximately \$128,000 (2016: \$10,000) available for set-off against future taxable income, subject to compliance with the relevant provisions of the Singapore Income Tax Act and agreement within the tax authorities.

Deferred tax asset arising from the unabsorbed tax losses have not been recognised since there is no reasonable certainty of their realisation in future periods.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

20. Capital commitment

Capital expenditure contracted during the financial year but not provided for in the financial statements amounted to \$2,052,485 (FY15/16: \$11,347,607) at the end of the reporting period.

21. Operating lease commitments

As lessee

The future minimum payments under non-cancellable operating leases for office premises and office equipment that were contracted at the reporting date but not recognised as liabilities are as follows:

	The Authority and the Group	
	FY16/17	FY15/16
	\$	\$
Not later than one financial year	7,229,494	7,158,187
Later than one financial year but not later than five financial years	8,998,039	15,939,251
	16,227,533	23,097,438

The leases for office premises which were contracted with rent payable will expire from 31 May 2017 to 2 December 2019.

As lessor

The future minimum amounts receivable under non-cancellable operating leases for the premises at the Authority's Fishery Ports that were contracted at the reporting date but not recognised as receivables are as follows:

	The Authority and the Group	
	FY16/17	FY15/16
	\$	\$
Not later than one financial year	4,279,171	4,797,106
Later than one financial year but not later than five financial years	2,086,247	3,691,179
	6,365,418	8,488,285

The leases on the premises of the Authority's Fishery Ports which were contracted with rent receivable will expire from 30 April 2017 to 21 March 2020.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

22. Significant related party transactions

The Authority is a statutory board incorporated under the Agri-Food and Veterinary Act (Note 1). As a statutory board, all Government ministries and departments, statutory boards and Organs of State are deemed related parties of the Authority.

During the year, the Authority has significant transactions with its supervisory ministry, the Ministry of National Development, and other related parties listed below, other than statutory charges and transactions disclosed elsewhere in the financial statements

	The Group and Authority	
	FY16/17	FY15/16
	\$	\$
Ministries and Statutory Boards		
Ministry of National Development		
- Rental expenses	5,239,718	5,237,879
Health Sciences Authority		
- Laboratory fees	6,500,000	6,500,000
Singapore Land Authority		
- Rental expenses	1,993,090	2,004,836
	The Authority	
	FY16/17	FY15/16
	\$	\$
Subsidiary		
Agrifood Technologies Pte Ltd		
- Professional fees	24,739	3,934

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

23. Financial risk management

The Authority and Group are exposed to financial risks arising from its operations and the use of financial instruments. The key financial risks include currency risk, interest rate risk, credit risk and liquidity risk.

The Authority and Group's overall risk management strategy seeks to minimise adverse effects from the unpredictability of financial markets on the Authority and Group's financial performance.

(a) *Currency risk*

Currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. The Authority and the Group have minimal exposure to foreign exchange risk as they transact mainly in Singapore dollars.

(b) *Interest rate risk*

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates.

The Group's interest-bearing financial instruments relate mainly to cash with AGD. The interest rates for Cash with AGD are based on deposit rates determined by the financial institutions with which the cash are deposited and are expected to move in tandem with market interest rate movements. The Authority and the Group are of the view that any fluctuation in interest rates is not likely to have a significant impact on the surplus before contribution to consolidated fund and taxation and to retained earnings.

(c) *Credit risk*

Credit risk is the risk that one party to a financial instrument will cause a financial loss for the other party by failing to discharge an obligation.

The maximum exposure to credit risk for the Authority and the Group are as follows:

	The Authority		The Group	
	FY16/17	FY15/16	FY16/17	FY15/16
	\$	\$	\$	\$
Trade receivables	1,294,528	1,760,244	1,385,208	1,872,984
Other receivables	540,759	772,278	541,543	772,278
Total	<u>1,835,287</u>	<u>2,532,522</u>	<u>1,926,751</u>	<u>2,645,262</u>

The Authority and the Group have no significant concentrations of credit risk. The Authority and the Group have policies in place to ensure that sales of products and services are made to customers with appropriate credit history, and that surplus funds are placed with reputable banks.

(i) Financial assets that are neither past due nor impaired

Trade receivables and other receivables that are neither past due nor impaired are with creditworthy debtors with good payment track record with the Authority and the Group. Cash and cash equivalents that are neither past due nor impaired are placed with banks with high credit ratings.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

23. Financial risk management (Continued)

(c) *Credit risk* (Continued)

(ii) Financial assets that are past due and/or impaired

There is no other class of financial assets that is past due and/or impaired except for trade receivables. The ageing analysis of trade receivables (gross) is as follows:

	The Authority		The Group	
	FY16/17	FY15/16	FY16/17	FY15/16
	\$	\$	\$	\$
≤ 90 days	110,819	160,391	110,819	241,391
> 90 days	88,165	53,441	169,165	75,942

Based on historical default rates, the Group believes that no impairment allowance is necessary in respect of trade receivables past due up to 90 days. These receivables are mainly arising by customers that have a good credit record with the Group.

The changes in impairment loss in respect of trade receivables during the year are as follows:

	The Authority	
	FY16/17	FY15/16
	\$	\$
Balance at beginning of the financial year	44,823	42,182
Amount charged for the year	69,037	39,198
Amount written off	(3,684)	(3,408)
Amount written back	(34,845)	(33,149)
Balance at end of the financial year (Note 7)	75,331	44,823

	The Group	
	FY16/17	FY15/16
	\$	\$
Balance at beginning of the financial year	44,823	42,182
Amount charged for the year	150,037	39,198
Amount written off	(3,684)	(3,408)
Amount written back	(34,845)	(33,149)
Balance at end of the financial year (Note 7)	156,331	44,823

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

23. Financial risk management (Continued)

(d) Liquidity risk

Liquidity risk is the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities. Liquidity risk may result from an inability to sell a financial asset quickly at close to its fair value.

The Authority and the Group's liquidity risk is minimal as the Authority and the Group maintain sufficient cash balances and internally generated cash flows to finance their operating activities and committed liabilities. In addition, the Authority is financially supported by grants primarily from the Government.

The table below summarises the maturity profile of the Group's financial instruments at the end of the reporting period based on contractual undiscounted payments:

	≤ 1 year	
	FY16/17	FY15/16
	\$	\$
The Authority		
<i>Financial assets</i>		
Trade and other receivables	1,759,956	2,487,699
Cash and cash equivalents	87,508,657	68,253,826
	89,268,613	70,741,525
<i>Financial liabilities</i>		
Trade and other payables	21,120,624	20,782,402
Amount due to Government	94,376	13,888
Rental, security and other deposits	2,666,657	2,646,291
	23,881,657	23,442,581
	≤ 1 year	
	FY16/17	FY15/16
	\$	\$
The Group		
<i>Financial assets</i>		
Trade and other receivables	1,770,420	2,600,439
Cash and cash equivalents	87,855,315	68,617,406
	89,625,735	71,217,845
<i>Financial liabilities</i>		
Trade and other payables	21,150,315	20,816,182
Amount due to Government	94,376	13,888
Rental, security and other deposits	2,666,657	2,646,291
	23,911,348	23,476,361

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2017

24. Fair value of assets and liabilities

Fair values

The fair value of a financial instrument is the amount at which the instrument could be exchanged or settled between knowledgeable and willing parties in an arm's length transaction, other than in a forced or liquidation sale. Fair values are obtained from quoted market prices, as appropriate.

Financial instruments whose carrying amounts approximate fair value

Management has determined that the carrying amounts of cash and cash equivalents, receivables, payables and accruals, amount due to Government and rental, security and other deposits reasonably approximate their fair values because these are mostly short term in nature or is assumed to approximate their fair values.

25. Capital management

The Authority and the Group's objectives when managing capital are to safeguard the Authority and the Group's ability to continue as a going concern and to support the Authority's mission. Under the Capital Management Framework for Statutory Boards, the Authority is expected to declare annual dividend to the Minister for Finance, a body incorporated by the Minister for Finance (Incorporation) Act, in return for any equity injection. The annual dividend to be declared is based on an agreed formula stipulated by the Ministry of Finance in the Finance Circular Minute No. M26/2008.

There were no changes in the Group's approach to capital management during the year.

The Authority and its subsidiary are not subject to externally imposed capital requirements.

26. Authorisation of financial statements for issue

The financial statements of the Authority and its subsidiary for the year ended 31 March 2017 were authorised for issue by the Board Members of the Authority on 19 May 2017.



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