



*the future  
in safe hands*





# Core Values

*“ To keep pace with the dynamics of the changing landscape, AVA will continue to nurture an environment that fosters integrity, innovation, personal growth, team spirit, care, high performance and professional excellence...”*





*Care*  
We value and nurture  
our staff and care for  
the community.



*Professionalism*  
We strive for multi-  
disciplinary professional  
excellence.





**Agility**  
We champion innovation  
and dynamism.



**Integrity**  
We exercise honesty,  
fairness and transparency  
in the discharge of  
our duties.



*Service  
Excellence*  
We take pride in  
delivering high quality  
and efficient service.



**Team-work**  
We work as a cohesive  
team to achieve  
greater synergy.

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## » *Our Corporate Vision*

*To be a premier organisation known for our professional expertise, excellent service and commitment towards the well-being of the nation.*

## » *Our Mission*

*To ensure a resilient supply of safe food, safeguard the health of animals and plants and facilitate agri-trade for Singapore.*

# Board of Directors



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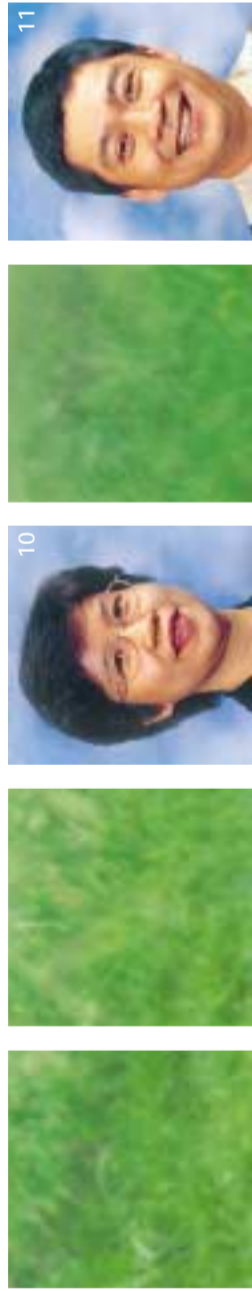
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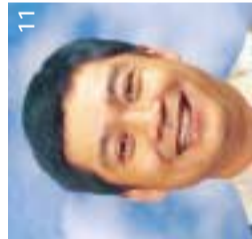
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## 01 Mr Koh Poh Tiong

CEO – Asia Pacific Breweries Ltd  
 Director – Wildlife Reserves Singapore Pte Ltd  
 Director – National Healthcare Group Pte Ltd  
 Director – Media Corporation of Singapore Pte Ltd  
 Council Member – Football Association of Singapore  
 Resource Panel Member – Government Parliamentary Committee (Finance, Trade & Industry)  
 Member – Nanyang MBA Advisory Board  
 Member – Anglo-Chinese School Board of Governors

## 02 Mr John Lim

Chairman – Building & Construction Authority  
 Chairman – Senoko Power Ltd  
 Director – Pan-United Corporation Ltd  
 Director – NTUC FairPrice Co-operative Ltd  
 Director – Sentosa Development Corporation  
 Member – Temasek Polytechnic Board of Governors  
 Fellow and Senate Member – Marketing Institute of Singapore

## 03 Dr Ernest Kan

Partner – Deloitte & Touche  
 Deputy Chairman – Commercial Training Advisory Committee,  
 Institute of Technical Education  
 Board Member – Public Accountants Board  
 Council Member – Institute of Certified Public Accountants of Singapore  
 Member – Panel of Inquiry Committee of the Public Accountants Board  
 Member – Singapore Chinese Chamber of Commerce & Industries

## 04 Dr Ngiam Tong Tau

CEO – Agri-Food & Veterinary Authority  
 Board Member – NTUC Fairprice Co-operative Ltd  
 Board Member – Wildlife Reserves Singapore

## 05 Professor Lee Soo Ying

Vice Provost (Budget & Planning) – National University of Singapore  
 Board Member – ES Cell International

## 06 Mr Soh Kim Siang

CEO – Toepfer International-Asia Pte Ltd

## 07 Assoc Prof Gilbert Chiang

Head – Department of Pathology Singapore General Hospital  
 Chairman – MOH Laboratory Board  
 Chairman – Specialist Training Committee for Pathology, Ministry of Health  
 Member – Biotechnology Advisory Committee, Singapore Polytechnic  
 Assistant Master – Academy of Medicine  
 Member – Joint Committee for Specialist Training  
 Member – Singapore Accreditation Board, Ministry of Health

## 08 Mr Koh Soo Keong

President & CEO – Singapore Technologies Logistics Pte Ltd

## 09 Mr Quek Peck Leng

Director (Group Human Resource) – Asia Pacific Breweries Ltd

## 10 Ms Goh Soon Poh

Deputy Secretary (Services) – Ministry of Education

## 11 COL Bernard Tan

(wef 1 April 2002)  
 Commander, 25 Division/ Chief Armour Officer

# Senior Management



(from left to right)

**Mr Lee Yuen Tong**

Director, Food Supply & Technology Department  
 Chief Fisheries Officer  
 Key responsibilities include :  
 - Food-supply and agri-trade facilitation  
 - Agrotechnology development  
 - Technical assistance/advisory services

**Dr Hilda Loh**

Director, Policy & Corporate Communications Department  
 Key responsibilities include :  
 - Policy development  
 - Corporate communications  
 - Information resource management  
 - International relations

**Dr Ngiam Tong Tau**

Chief Executive Officer & Director-General, Agri-Food and Veterinary Services

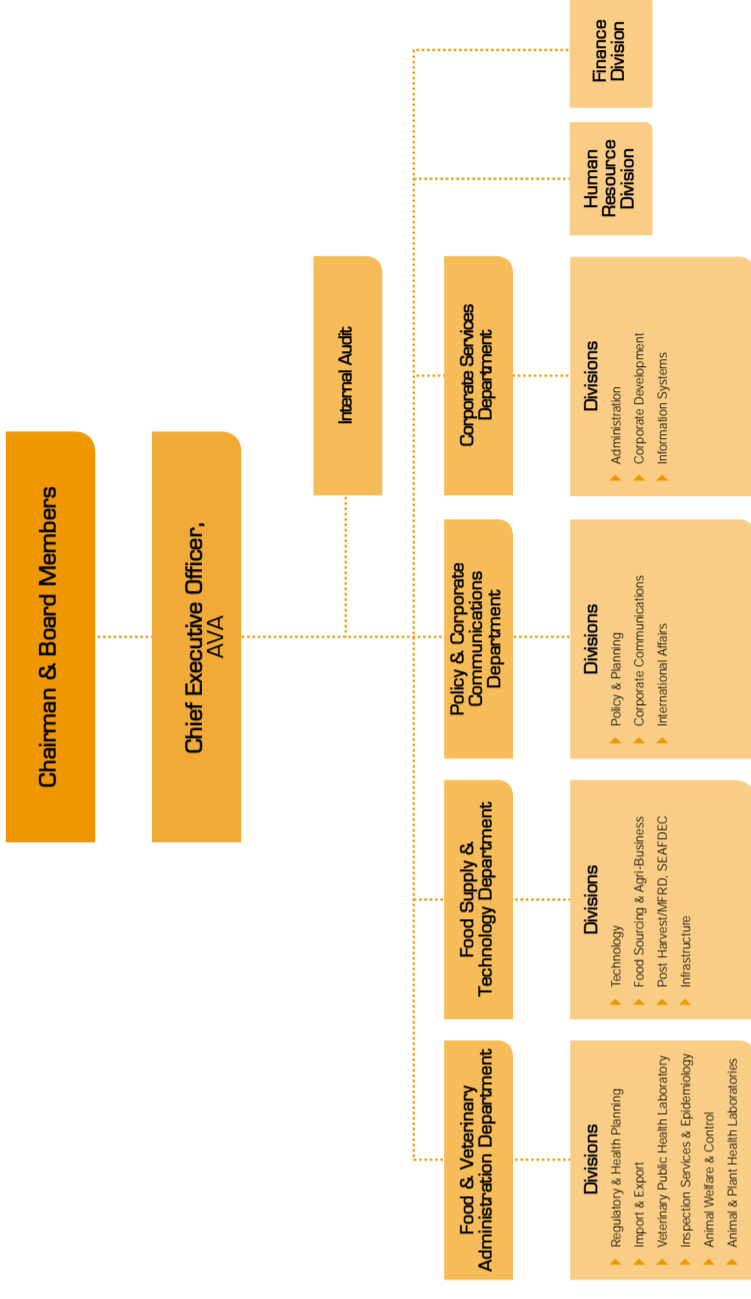
**Dr Chua Sin Bin**

Deputy CEO & Director, Food and Veterinary Administration  
 Chief Veterinary Officer  
 Key responsibilities include :  
 - Food safety  
 - Animal and plant health  
 - Animal welfare and control  
 - CITES

**Mr Loy Wei Sun**

Director, Corporate Services Department  
 Key responsibilities include :  
 - Information systems  
 - Corporate development  
 - Office administration

# AVA Organisation Chart 2002



# Chairman's Statement



“ After one year of transformation into a statutory board, AVA's mission of championing **food safety and resilience, safeguarding animal and plant health and enhancing agri-trade** for the nation, proved to be a smooth and rewarding one.”

To increase the robustness and responsiveness of our food control system, the Government has decided to rationalise the food safety responsibilities along the lines of the food supply chain rather than by food types. As a result, the Food Control Department (FCD) of the Ministry of the Environment (ENV) will be transferred to AVA from 1 July 2002. This will bring us closer towards a seamless operation in ensuring food safety.

Ensuring a Resilient and Safe Food Supply to Singapore

Given our very limited land for agriculture, Singapore imports more than 90% of our food from overseas. One of AVA's key thrusts is therefore to ensure a safe and resilient food supply to Singapore.

The year-round supply of safe food from all over the world was the result of our continuous food diversification programme that has been implemented to ensure that Singaporeans can enjoy a steady and varied supply of safe and wholesome food at stable prices.

In Search of Safe Food Supplies

AVA officers made overseas visits to look for new food sources, inspect operations of potential exporters and assess them for accreditation.

Food-sourcing missions made during the year included visits to parts of China—Shandong, Shanghai, Beijing and Inner Mongolia, which opened up new sources for fruit and vegetable imports to Singapore; and a trade mission to New South Wales and South Australia which yielded new opportunities for seafood imports.

**Tight Checks and Surveillance to Ensure High Food Safety Standards**

We achieved zero cases of food poisoning outbreaks due to contaminated imports of fresh produce per 100,000 people in our population in 2001. The stringent and comprehensive system of checks and surveillance of food imports put in by AVA, has helped us to keep foodborne diseases at bay.



**Review of Our Food Safety Programme**

In conjunction with the larger responsibility on food control and safety assurance, AVA has appointed an International Advisory Committee of Experts (IAC) to review and assess the effectiveness of our food safety and biosecurity programmes. The committee of international experts will be visiting Singapore in July 2002 to review our food safety system.

**Food Safety as a Shared Responsibility**

With the globally rising trend of foodborne diseases, we embarked on a public education programme to raise the level of food safety consciousness among consumers in Singapore and to instill public confidence in AVA as a national food safety authority.

The public education programme kicked off with press advertorials and collaterals, and online consumer education, which share tips on food safety. The food safety awareness programme will be officially launched in July 2002.

**Safeguarding Animal and Plant Health**

Singapore remained free from major animal and plant diseases through stringent import controls and health screenings. We steered clear of zoonotic diseases such as the Bovine Spongiform Encephalopathy (BSE), avian flu and Salmonella enteritidis disease, and kept major quarantine problems away from our shores.

Compulsory identification of imported dogs using microchips was introduced during the year, to help in traceability of diseases.

For the first time, poultry slaughterhouses were graded, following an initiative to subject them to regular reviews on food safety controls.

New monitoring and surveillance programmes were developed in response to emerging threats such as anthrax, campylobacter, vancomycin resistant Enterococci (VRE) and antibiotics in meat and fish. Besides high-risk food items, we also stepped up testing of food produce that might have been affected by certain incidents, such as the intensified testing of our fisheries after the phenol spillage incident off the shores of Johor, near Pulau Ubin.

Underpinning our ability to screen off foodborne diseases is our Veterinary Public Health Laboratory, which developed 24 new laboratory test capabilities and received 145 Chemical and Biological test accreditations under the Singapore Laboratory Accreditation Scheme last year.

Our advanced laboratory testing capability will be further boosted with the opening of the Veterinary Public Health Centre in 2003.

**Building AVA as the National Food Safety Authority**

To increase the robustness and responsiveness of our food control system, the Government has decided to rationalise the food safety responsibilities along the lines of the food supply chain rather than by food types. As a result, the Food Control Department (FCD) of the Ministry of the Environment (ENV) will be transferred to AVA from 1 July 2002. This will bring us closer towards a seamless operation in ensuring food safety.



AVA's diagnostic capabilities in animal diseases, especially aquatic diseases, were upgraded to facilitate its ongoing search for effective techniques of virus detection. Successful efforts included the establishment of new techniques for detecting systemic iridoviruses in fish tissues, and the development of Polymerase Chain Reaction (PCR) for detecting five OIE (World Animal Health Organisation) listed aquatic viruses.

AVA takes a serious view of animal welfare. To encourage responsible pet ownership, we launched a public education programme targeting school children, pet shops and pet owners, as well as members of the public.

#### Fostering International Ties to Promote Agri-trade

During the year, AVA played an integral role in promoting ASEAN collaboration and providing technical assistance to member countries, including Brunei, Laos, Myanmar and Vietnam. Among a host of joint activities, we organised a training programme for ASEAN regulators and decision makers on agriculture-related GMOs.

In a breakthrough co-operation project, an MOU was signed with the Riau government on 12 October for the transfer of farming and post-harvest technology to Indonesian farmers. In this project, AVA set up demonstration farms in Pekanbaru, where Indonesian farmers were shown modern farming techniques that will help increase their vegetable quality and productivity, for potential supply to the Singapore market.

#### Leveraging on R&D to Increase Agricultural Productivity

A key thrust in AVA's mission is to develop, with research institutes, commercially viable agrotechnology and agri-biotechnology products to help increase agricultural productivity for farmers.

A research and development project that was completed in April 2001 for deep netcage fish farming saw the successful culturing of fish species such as seabass, snappers and trevally, for the mass market.

AVA developed an innovative technique to process dried shrimps using a vacuum oven in place of the traditional method of sun-drying, producing soft and crispy textured dried prawns. The product was commercialised by a prawn farm as a snack food which was even included in STB's Singapore Premium Food Gift scheme.

Various stress resistance techniques were introduced to ornamental fish farmers to reduce post-shipment mortality in guppies. Broodstock management and breeding technology of Arapaima, an endangered fish species, was transferred to farmers for commercial trading. This trade in Arapaima is possibly the first in the world.

For the cultivation of higher value crops, AVA successfully introduced a seed plug transplanting system to the vegetable farms here. The new technology was adopted by some 30% of our local vegetable farms, and helped to reduce manpower for bed thinning and seed wastage, while increasing the number of crops in a year.

#### A Robust and Excellent Organisation in the Making

For sharper focus, AVA launched a new vision statement with mission and goals that will guide its staff and operational efforts. During the year, our organisational structure and human practices were revamped to enhance operational efficiency.

To ensure that our workforce is resilient and capable of serving the evolving needs of the nation, we embarked on the journey towards achieving the People Developer Standard. A systematic and total approach was adopted for staff development, training and review.

Investments were made to provide staff with an average of 14.97 days of training per person, and to sponsor staff for overseas training and exposure.

#### IT as a Strategy to Providing Better Service

An IT Master Plan was developed to support the mission-critical services provided by AVA. Work is being carried out to bring on-stream, three new online services, namely the Electronic Certificates, Licences and Permits system (eCLIPS), Inspection Services (IS) and the Laboratory Information Management System (LIMS).

An electronic Dog Licensing System (e-DLS) was introduced in November to facilitate application, renewal and payment of dog licenses through the internet.

#### Future Plans and Challenges

A 10-hectare Agri-Bio Park has been developed to serve as a hotbed for R&D investments and activities in agri- and aquaculture, which will serve the longer-term needs of Singapore.

Two centres for laboratory testing, namely the Veterinary Public Health Centre and the Animal and Plant Health Centre, will be opened at the Agri-Bio Park in 2003 and 2004 respectively. They will be equipped with advanced testing capability that will boost our efforts to control and detect diseases and food contaminants.

In the light of an increasing global trend of foodborne diseases, it is not enough to rely on the Government to protect food coming into or produced in Singapore. Public education will be rolled out to

increase the importance of the individual's role in ensuring safe food consumption, while increasing the visibility of AVA as the national food safety authority.

We will continue to work closely with ASEAN and our industry through regular dialogue, visits and trade missions to promote stronger trade ties and co-operation. We also constantly assist local food industry to upgrade their food safety operations and skills to meet the stringent requirements of the international markets.

Management development and succession will be given top priority. Our current policies and processes will be reviewed to cut down red tape and improve operational efficiency.

#### Appreciation

I am gratified by the enthusiasm and support shown by AVA staff and my Board colleagues in seeing us through an eventful year, and would like to express my sincere thanks and appreciation to all of them. I am also grateful for the cordial relations extended to us by associates and partners in the industry, as well as our staff union. Let us continue to scale new challenges together in the year facing us.

**Koh Poh Tiong**  
Chairman

# Calendar of Events

## 2001

### April

- ▲ A seminar was held in MFRD for members of the Seafood Industry Association of Singapore (SIAS) on use of transglutaminase (TG) enzyme to improve the gel-forming ability of surimi-based products and fish meat binding.
- ▲ AVA officers attended the 16th session of the Codex Committee on General Principles in Paris.
- ▲ An AVA delegation led by Dr Ngiam Tong Tau, attended the ASEAN Ministers on Agriculture and Forestry (AMAF) meetings in Siem Reap, Cambodia.

### May

- ▲ Compulsory microchipping of all dogs before importation took effect on 1 May.
- ▲ AVA and TDB jointly organised a Trade Mission to Australia.
- ▲ AVA launched a series of talks on responsible pet ownership at schools.

### June

- ▲ The first Demonstration Farm (Phase 1) of the leafy vegetable project in Riau was completed.
- ▲ AVA represented Singapore at the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 45th Standing Committee Meeting held in Paris.
- ▲ AVA made the first study trip to Myanmar to develop HACCP for fermented fish products.

### July

- ▲ Assisted Peixin Primary School in setting up a plant tissue culture laboratory, which was officially opened by Mr K Shanmugam, MP for Sembawang GRC.
- ▲ AVA representatives flew to Nakhon Pathom, Thailand for an ASEAN Workshop on Food Security Co-operation and Rice Reserve Management System in East Asia.
- ▲ Our Marine Fisheries Research Department (MFRD) conducted training courses in fisheries post-harvest technology for the region.

### August

- ▲ A Food Safety Conference for Asia was jointly organised with PSB, FCD, TDB & key regulatory agencies in USA.
- ▲ The scheme for implementing phytosanitary tags in lieu of certificates for hand-carried cut orchid consignments was finalised.

### September

- ▲ AVA officers visited Yangon, Myanmar, as a follow-up to the 4th Singapore-Myanmar Joint Ministerial Working Committee. Together with TDB and SIAS, AVA jointly organised the Fisheries Trade Mission to Myanmar.

## 2002

### January

- ▲ AVA Care and Share Day Charity Bazaar was organised.
- ▲ The 2nd study trip to Myanmar was organised on the development of HACCP for fermented fish products.

### February

- ▲ AVA appointed an International Advisory Committee of experts to review our food safety and biosecurity health issues.
- ▲ A bilateral technical meeting with the Malaysian Department of Veterinary Services was held to discuss animal health issues.

### March

- ▲ AVA signed an agreement with the Fisheries Research Agency of Japan on a scientific exchange programme on marine aquaculture.

### October

- ▲ AVA participated in the 23rd AMAF Meeting in Medan, Indonesia.
- ▲ A Tissue Culture Course was conducted for Vietnamese officers.
- ▲ Our Inspection team visited Japan to assess the eligibility of exports of pork, chicken, and other products to Singapore.
- ▲ AVA's 2nd regional workshop on HACCP application in the fish processing industry in Southeast Asia took place in Ho Chi Minh, Vietnam.

### November

- ▲ A food sourcing mission was made to China for vegetables and fruit imports.
- ▲ Technical assistance was extended to an ornamental fish farm, leading to the successful captive breeding of the endangered Arapaima.
- ▲ AVA officers attended the ASEAN-SEAFDEC Conference on "Sustainable Fisheries for Food Security in the New Millennium" and "Fish for the People" in Thailand.
- ▲ The electronic Dog Licensing System (e-DLS) was made public.

### December

- ▲ 20,000 pieces of marine tilapia were successfully produced using 45 broodstocks from Taiwan for local farming.

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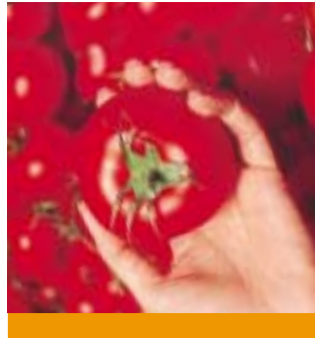
## *We strive to:*

- ▶ facilitate the supply of stable, safe and wholesome meat and meat products, fish and fish products, fresh fruit and vegetables;
- ▶ safeguard the health of animals, fish and plants;
- ▶ be a centre of excellence for tropical agrotechnology services;
- ▶ facilitate trade in primary produce.



Per **100,000** population, there were **0** cases of food poisoning outbreaks due to contaminated imports of meat, fish, vegetables and fruit in 2001.

## Safeguarding the Quality of Our Food



Foodborne diseases have seen a rise over the last few decades in many industrialised countries. There is more focus on communicable diseases such as cholera and toxic chemicals which can reach consumers via food. The use of pesticides, antibiotics and growth hormones in food production has also come under intense scrutiny. The outcome of diverse standards for growing and processing agricultural products in different regions has also raised questions. Our unusually heavy dependence on overseas sources for 90% of our food supply has made it all the more necessary for us to keep a constant vigilance in the implementation of our food safety measures.



Our approach to food safety involves a 'whole food chain' strategy. The measures include:

- (1) **Inspection and Accreditation**
  - ▶ Inspection of source farms for good disease control programmes, good husbandry practices, and healthy animals.
  - ▶ Inspection of abattoirs and meat processing establishments for high standards of hygiene and sanitation, good manufacturing practices, as well as effective and efficient meat inspection systems.
- (2) **Import Inspection**
  - ▶ Inspection of import consignments at point of entry into Singapore to ensure that it is free from disease and spoilage.
- (3) **Laboratory Testing**
  - ▶ Samples are taken from imported consignments, local abattoirs and farms for laboratory testing on presence of harmful organisms, chemical contaminants and drug residues.

A system of checks and counter-checks at critical stages enables the hazards to be weeded out at source before they enter the food chain. Early detection, prevention and control of emerging threats such as pathogens, new mutations and accidents of bio-engineering is crucial in ensuring the safety of our food supply and the quality of life for all.

### Inspection and Accreditation: Rooting out the Source of Food Hazards

Very often, the origin of foodborne hazards can be traced to its source. As such, it is vital to ascertain the safety of the sources by assessing the exporting country's animal health status, veterinary public health and disease control programmes, and supporting legislation. It is of paramount importance that the exporting country has these resources and capabilities to stem any hazard from entering the food chain. In addition, continual efforts are made by AVA to approve and accredit new sources of primary food with high hygiene and food safety standards so that the nation will enjoy resilient food supply.

### Overseas Inspection Visits

During the year, inspection visits to China brought us to two chicken slaughterhouses and one processed meat plant. We also audited two approved canned meat establishments in Shanghai and Jiangsu. In Shenzhen, a meat processing establishment was inspected to ascertain its eligibility to export additional new products to Singapore. We also visited pig farms, slaughterhouses and the Veterinary Public Health and Animal Health Laboratories in Japan to assess its eligibility to export pork, chicken and processed meat products to Singapore. A trip was also made to Thailand to evaluate the export of processed poultry meat to Singapore.

**Accreditation of Overseas Farms and Establishments**  
In Singapore, meat is imported only from AVA-approved establishments. In year 2001, 23 new establishments from Australia,

Brazil, China, France, New Zealand and Thailand contributed to an increasing pool of approved exporters of meat and meat products to Singapore. Six listed establishments from France, Malaysia and Sweden were approved to export additional new products to Singapore. A total of 27 establishments from Belgium, China, Germany, Sweden, Australia and Argentina was deleted due to closure of operation, advice from the authority or plant sanitary deficiencies.

As for foreign pig and poultry farms, the number accredited to export pig and poultry to Singapore stood at 208, out of which 200 farms were from Malaysia. Total number of new farms accredited this year was 17 while the number of farms suspended/de-listed was 108. Reasons for suspension/de-listing included detection of Salmonella enteritidis (SE), vancomycin resistant Enterococci, Nitrofurantoin residues, or Chloramphenicol residues.

### Inspection of Local Poultry Farms

With our continual surveillance for Salmonella enteritidis (SE) in local layer farms, people can be assured that the eggs they consume are free from the potential food poisoning organisms.

All layer farms were encouraged to adopt disease prevention measures and improve their bio-security. Several farms were already adopting the use of feed acidifiers, and making efforts to improve bio-security in both the production and non-production areas. We continued to keep an eye on the Salmomella typhimurium control programmes, which had been instituted at two quail farms.

**Inspection of Local Vegetable and Mushroom Farms**  
Various inspection programmes continued to be in force in the financial year. Local vegetable and mushroom farms were inspected to ensure the safe application of pesticides in farms. Proficiency tests were conducted and 18 pesticide operators were certified. Only pesticides that are approved by AVA and applied by AVA-certified operators, can be used in local farms. To ensure the safe usage of pesticide, proficiency tests are carried out on samples for pesticide residues.

### Checks on Local Meat and Fish Establishments

Regular checks are also conducted on local meat abattoirs, poultry slaughterhouses, meat and fish processing establishments, and cold stores. A variety of inspections is conducted on a consistent basis to root out any food products that do not meet AVA's conditions of licensing, Good Manufacturing Practices (GMPs) and food safety regulations.

While strict standards are applied in the licensing of meat and other processing establishments and slaughterhouses, AVA is willing to assist in the establishment of the essential infrastructure to ensure proper process flows. We also undertake the role of educating licensees on Good Manufacturing Practices (GMPs), the use of food safety programmes such as Hazard Analysis & Critical Control Point (HACCP), as well as other relevant quality control programmes. To date, the AVA has licensed 352 meat and fish processing establishments, comprising 106 cold stores, 96 fish and 153 meat establishments. One pig slaughterhouse, one crocodile slaughterhouse, 10 chicken slaughterhouses and 5 duck slaughterhouses have been licensed too.



All primary produce and livestock are subject to mandatory inspection at ports of entry. Import inspections include scrutinising the health documents, and examining every consignment visually for wholesomeness and freedom from disease, spoilage and economic fraud. Laboratory investigations will be carried out on any consignments that look suspicious. All unfit consignments are refused import and destroyed, or returned to the country of origin.

An initiative was introduced in the year to regularly assess poultry slaughterhouses to ensure that the food safety controls are applied, and the slaughtered/processed poultry are safe for consumption. A total of 709 inspections was conducted encompassing pre-slaughter inspection, collection of swab samples for testing, hygiene inspection during slaughter operations, and cold chain inspection.

During the year, six chicken slaughterhouses were awarded Grade B, four duck slaughterhouses obtained Grade C, while three chicken and one duck slaughterhouses received Grade D. It was the first time all the poultry slaughterhouses were graded, 'A' being the best in hygiene and 'D' being the worst.

#### Inspection of Local Livestock for Slaughter

Livestock that failed both pre- and post-slaughter inspections were condemned as unfit for sale. Only well-rested and clinically healthy animals were allowed for slaughter and likewise, only healthy carcasses were allowed for sale.

A total of 5,530 samples was collected from the poultry slaughterhouses, where tests on harmful pathogens and drug

residues were conducted. A total of 12,152 meat samples was also collected in FY2001 for various surveillance programmes.

New surveillance plans were implemented in the course of the year for assessing samples for freeze-thaw testing. Beta-agonist testing was extended to chickens, which was only performed in ducks previously. Testing for the new class of antibiotic residues - quinolones was also introduced in the year.

#### Import Inspection: Keeping out Potential Food Threats

All primary produce and livestock are subject to mandatory inspection at ports of entry. Import inspections include scrutinising the health documents, and examining every consignment visually for wholesomeness and freedom from disease, spoilage and economic fraud. Laboratory investigations will be carried out on any consignments that look suspicious. All unfit consignments are refused import and destroyed, or returned to the country of origin.

#### Inspections of Imported Meat and Meat Products

In FY2001, an examination of 47,547 meat and meat product consignments valued at S\$593 million was carried out by the Inspection Services and Epidemiology Division (ISED). Out of these, 8,248 were chilled pork consignments, none of which were rejected. In addition, a total of 12,152 meat samples was collected this year for various surveillance programmes.

#### Inspection of Imported Fish and Seafood

While imported fish are relatively contaminant-free, they are continually monitored for various chemical preservatives such as formaldehyde, benzoic acid, boric acid, heavy metals, antibiotic residues and parasites. During the year, 1,629 fish consignments valued at S\$30 million were inspected and 2,188 fish samples were collected for various laboratory testing.

Inspection and sampling of five high-risk items were made mandatory. They include frozen/live oysters, cooked crabmeat, fish from Europe, cooked shrimp and blood cockle. These high risk items would be automatically detained upon arrival for physical inspection and further testing at the Veterinary Public Health Laboratory (VPHL). Every import consignment must come with a health certificate from the country of origin. Only oysters bred in clean waters and in countries with acceptable shellfish sanitation programmes can be imported.

Cooked prawns and crabmeat, which have been exposed to excessive handling, were considered high-risk products and detained. Seafood imported from sources that were affected by marine biotoxins or outbreaks of infectious enteric diseases (such as cholera) were automatically suspended.

Besides the usual five high-risk items, we also started sampling smoked salmon for *Listeria* and fish from Europe for poly-chlorinated biphenyls (PCB). In response to a news report, sampling and laboratory tests were also run for hairy crabs from China for drug residues. Dried and salted fish were also sampled and tested for pesticide residues. During the year, 2% of seafood consignments

were rejected. The main reason was the contamination of smoked fish products and frozen tuna.

Imports of fish were subject to intensified inspection and analysis after the phenol leakage incident from an Indonesian-registered tanker on 13 June 2001. As the tanker was grounded in Malaysian waters off Pulau Ubin, we took immediate precautions by prohibiting 37 floating fish farms in the vicinity of the spillage area from harvesting and selling their fish. Seawater and fish samples from our fishing farms were regularly tested at VPHL. In addition, fish imports from Malaysia were subject to intensified inspection and analysis. This prohibition was in force until 27 June 2001.

#### Inspection of Imported Fruit and Vegetables

A total of 11,701 consignments of fresh fruit and vegetables from 25 countries was inspected and screened for residues of pesticides, preservatives and other harmful contaminants. Our stringent and vigilant surveillance resulted in the overall pesticide violation rate being maintained at below 5%.

Arising from the anthrax scare in US in October 2001, fruit and vegetable imports from US, Netherlands, Australia, Malaysia and Indonesia were randomly sampled and screened for anthrax contamination. All samples tested negative.

Following the reported incident of cyanide spillage into a river in China, immediate precautionary measures were taken to screen fruit and vegetables from China for cyanide.





Longans from all countries continued to be under 100% check for the presence of sulphur dioxide, a stringent check that had prevented unwholesome longans from reaching our consumers.

Acting on a report on the presence of heavy metals in agricultural lands in Malaysia, samples were collected from Malaysian imports for further analysis to ensure that they were safe to be eaten.

We continued to liaise with our Malaysian counterparts in the monitoring of the vegetables from Malaysia. Weekly feedback on cases of pesticide violation was sent to Department of Agriculture, Ministry of Health, Malaysia as well as to the growers' Associations for follow-up remedial action.

#### Laboratory Testing: Analysis to Ensure Food Safety

A key contributor to our growing reputation for high food safety standards is our Veterinary Public Health Laboratory (VPHL). Samples of import consignments are taken for laboratory analysis under our ongoing monitoring and surveillance programme. It is VPHL's close surveillance along with the continual development of new test capabilities, which are responsible for raising Singapore's profile as a country which imports and exports safe, quality food.

Boasting a comprehensive range of test capabilities VPHL is fully equipped with the latest instruments to detect pathogens and chemical contaminants in our food system. Enhancing its capacity to handle high volume testing by keeping abreast of cutting-edge technology, it is capable of discharging its responsibility as the centre

of excellence for food safety testing in Singapore. For the financial year 2001, a total of 1,013,901 tests was conducted on 71,438 samples of imported and locally-produced food products.

The VPHL continually sources for, and embarks on relevant research and methods developments to enhance its capability and efficiency in detecting food contaminants and pathogens. Almost 24 new testing capabilities were developed this year by VPHL and significant among this was the development of the methodology for the screening of anthrax contamination in foods following the Anthrax scare in US in October 2001.

A GMO Inter-Section task force had also been formed to work on the establishment of the capability for detection and quantitative analysis of levels of transgenic gene matter of GMO corn in processed products using Real-Time PCR techniques.

The laboratory was accredited to ISO25 in February 2000. Following the first annual surveillance assessment of VPHL in February 2001, 142 tests under the Chemical & Biological testing were accredited under the Singapore Accreditation Council - Singapore Laboratory Accreditation Scheme (SAC-SINGLAS) in August 2001. The second surveillance assessment resulted in the accreditation of an additional 3 tests bringing the total to 145 accredited tests under this scheme.

Our new building, the Veterinary Public Health Centre, scheduled to be completed by January 2003, will provide the facilities necessary for optimal laboratory and food inspections, as well as the growth and development of food safety testing functions. This would allow AVA to tackle existing and emerging problems of food safety significance more effectively.

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Acting on a report on the presence of heavy metals in agricultural lands in Malaysia, samples were collected from Malaysian imports for further analysis to ensure that they were safe to be eaten.

We continued to liaise with our Malaysian counterparts in the monitoring of the vegetables from Malaysia. Weekly feedback on cases of pesticide violation was sent to Department of Agriculture, Ministry of Health, Malaysia as well as to the growers' Associations for follow-up remedial action.

#### Laboratory Testing: Analysis to Ensure Food Safety

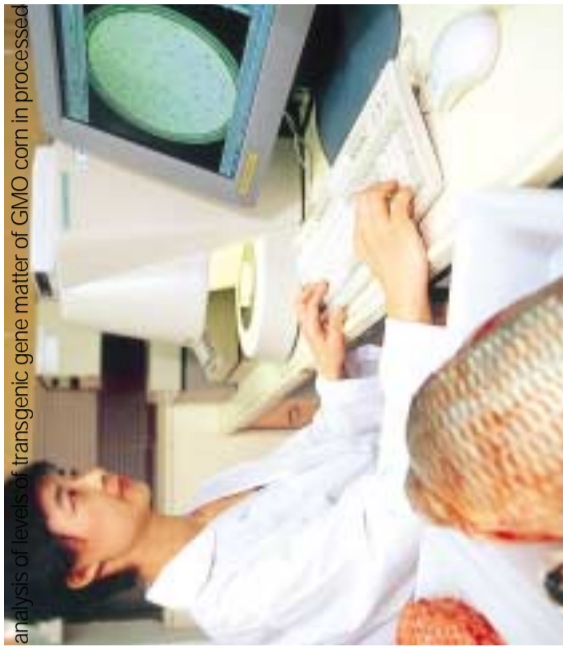
A key contributor to our growing reputation for high food safety standards is our Veterinary Public Health Laboratory (VPHL). Samples of import consignments are taken for laboratory analysis under our ongoing monitoring and surveillance programme. It is VPHL's close surveillance along with the continual development of new test capabilities, which are responsible for raising Singapore's profile as a country which imports and exports safe, quality food.

Boasting a comprehensive range of test capabilities VPHL is fully equipped with the latest instruments to detect pathogens and chemical contaminants in our food system. Enhancing its capacity to handle high volume testing by keeping abreast of cutting-edge technology, it is capable of discharging its responsibility as the centre

of excellence for food safety testing in Singapore. For the financial year 2001, a total of 1,013,901 tests was conducted on 71,438 samples of imported and locally-produced food products.

The VPHL continually sources for, and embarks on relevant research and methods developments to enhance its capability and efficiency in detecting food contaminants and pathogens. Almost 24 new testing capabilities were developed this year by VPHL and significant among this was the development of the methodology for the screening of anthrax contamination in foods following the Anthrax scare in US in October 2001.

A GMO Inter-Section task force had also been formed to work on the establishment of the capability for detection and quantitative analysis of levels of transgenic gene matter of GMO corn in processed



### ► Veterinary Public Health Laboratory: Performance Output, FY2001

Performance Indicators	Function					Total
	Health Certification	Quality Tests	Import Control	Service & Surveillance	R & D and QA	
No. of Samples Tested	2,908	2,230	26,352	26,250	13,698	71,438
No. of Laboratory Tests Performed	28,259 (2.79%)	20,223 (1.99%)	822,728 (81.14%)	109,001 (10.75%)	33,690 (3.33%)	1,013,901 (100.00%)

### ► Ongoing Surveillance on Primary Produce

Primary Produce	Food Safety Hazards
Meat/Meat Products	Heavy metals, preservatives, additives, poly-chlorinated biphenyls, radioactivity, tylosin, beta-agonist, nitrofurans, chloramphenicol, Staphylococcal enterotoxins, E.coli O157:H7, Salmonella, Listeria monocytogenes, vacuum resistant Enterococci, campylobacter, parasites
Seafood/Seafood Products	Heavy metals, preservatives, additives, formaldehyde, cyanide, radioactivity, nitrofurans, chloramphenicol, marine toxins, Salmonella, vibrio, parasites
Fruit & Vegetables	Sulphur dioxide, pesticide residues, E.coli O157:H7

### ► New Test Capabilities

- Method for confirmation of beta-agonists by LC/MS/MS
- Method for confirmation of Aminoglycosides (gentamicin, neomycin, kanamycin) by LC/MS/MS
- Method for confirmation of Fluoroquinolones by LC/MS/MS
- Method for the detection of Formaldehyde in fruits by HPLC
- Screening method for the detection of Fluoroquinolones by MIA
- Screening method for the detection of Macrolides by MIA
- Method for the detection of N-methylcarbamates in meat by HPLC/post column derivatisation
- Method for the detection of N-methylcarbamates in water by HPLC/post column derivatisation
- Pyrethroids in meat by GC/ECD
- Determination of imidacloprid in vegetables by HPLC/DAD
- Determination of Dithiocarbamates in vegetables & fruit – automated injection of dithiocarbamates in iso-octane
- Method for the detection of Micro Leak in canned food
- Species identification of meat and meat products using the Restriction Fragment Length Polymorphism (RFLP) Analysis of Mitochondria DNA
- Physical and microscopic examination methods for the Identification of Nostoc Algae (Chinese faecal)
- Identification of bile acids in animal gall bladder and bear bile by Thin Layer Chromatography (TLC)
- Determination of histamine level using a Rapid ELISA Test Kit (Veratox from Neogen Corporation)
- Detection of BSE causative agent, PrP<sup>Sc</sup> in bovine tissues using the Platelia immunoenzymatic kit
- Qualitative and quantitative detection of GM soy and corn using the BAX PCR kit
- Colony-count technique for E. coli enumeration using chromogenic TBX agar
- Molecular characterisation of B. pseudomallei using the automated RiboPrinter System
- Detection of anthrax in food produce using a multiplex PCR method
- Detection of Salmonella by the automated BAX System using Real-time PCR technique
- Antimicrobial susceptibility testing for Salmonella and Campylobacter antibiotics resistance
- Detection of Hepatitis A virus in shellfish using PCR method





In Singapore, we enjoy an environment that is virtually free of important animal and plant diseases. In fact, statistics for FY2001 showed that we have successfully kept out **98.2%** (109 out of 111) of the animal and plant diseases.

## Protecting Local Flora and Fauna



The pursuit of good health for our plants and animals concerns everyone in the community. We cannot ignore the animals and plants because they are very much an integral part of the environment we live in. Zoonotic diseases, for example, can spread from animals to human. Strays, if kept unchecked, can put you, your family and your pets in danger as they are more likely to be exposed to diseases. Diseased animals and plants will affect the quality of our food and thereby affect health adversely. Health excellence results when our plants, animals and humans are well taken care of. Keeping Singapore free from exotic pests and diseases therefore, ensures a better quality of life for all.

To date, our nation has steered clear of major animal diseases including rabies, Nipah virus disease, highly pathogenic avian influenza, Bovine Spongiform Encephalopathy (BSE) and Salmonella enteritidis (SE). Singapore has been accorded an Annex 1 status for geographical risk for Bovine Spongiform Encephalopathy (BSE) by the European Union (EU). We are amongst the 13 countries with the least risk for BSE.

Singapore has continued to receive a 'clean bill of health' through a series of comprehensive animal and plant health programmes aimed at (a) preventing the introduction of diseases and pests (b) keeping in check the spread of diseases and pests. Prevention, control and assessment of the diseases is ensured through inspection, statistically-sound sampling at points of entry, quarantine for imported animals, as well as intensive monitoring and surveillance.

### Thwarting the Entry of Animal Diseases

Inspection visits are crucial in ensuring early detection, treatment and containment of disease. In FY2001 alone, we made a total of 1,507 visits to 20 local livestock farms, from layer poultry, to dairy cattle and goat farms. A total of 66 visits was also made to marine food fish and ornamental fish farms and exporter premises.

We continued to impose stringent import control, taking instant action to stem imports from any reported source of disease. An initiative introduced on 1 May 2001 was that all imported dogs must be identified with microchips. In the event that diseases are inadvertently introduced through importation, these microchips will be instrumental in disease traceability.

Ongoing efforts are made to screen imported agriculture products for other pathogens of public health significance. They include *Escherichia coli* O157:H7, vancomycin-resistant *Enterococcus* spp, *Listeria monocytogenes*, *Yersinia enterocolitica*, *Mycobacterium paratuberculosis*, *Burkholderia pseudomallei*, *Brucella* and *Salmonella enteritidis* (SE).

With effect from May 2001, pigs imported from Pulau Bulan are required to go through weekly screening for antibodies to Nipah virus at Central Veterinary Laboratory (CVL). Testing can be expediently done at our laboratory, taking up to two weeks prior to import, instead of the usual eight.

Imported horses from Malaysia are required to be quarantined for two weeks at either Singapore Turf Club's quarantine stables in Neo Tiew Road or in the stables at Jurong Animal Quarantine Station. This was enforced after the ban on horses from Malaysia was lifted on 1 May 2001 following the successful control of Nipah disease outbreak.

Our vigilance over diseases continued to be as stringent as ever. A total of 155,930 laboratory tests was performed by the Central Veterinary Laboratory (CVL) to detect and identify diseases in animals and birds. In July 2001, the discovery of the velogenic Newcastle Disease virus in Jurong Bird Park (JBP) led to the instant closure of three aviaries, followed by an extensive serological and virological surveillance of the birds at the Park. To contain the disease outbreak, we implemented strict sanitary measures and carried out systematic culling of free ranging jungle fowls suspected of being carriers.

While keeping a close eye on the health of our plants and animals, CVL was also in constant search of effective techniques for virus detection. Research investigations on fish disease in collaboration with both local and overseas institutes had established immunohistochemistry and indirect immunofluorescent techniques for detecting systemic iridoviruses directly in fish tissues.

Polymerase Chain Reaction (PCR) techniques were also developed for the detection of five OIE listed aquatic viruses, namely Red Sea bream iridovirus (RSIV), epizootic haematopoietic necrosis virus (EHNV), spring viraemia of carp virus (SVCV), whitespot syndrome virus (WSSV) and viral nervous necrosis (VNNV). A polyclonal rabbit antiserum to SVCV was successfully developed for use in diagnostic tests.

Testimony to CVL's high laboratory standards was its successful participation in the Inter-laboratory Proficiency Quality Assurance programmes for tests used to screen racehorses for exposure to equine viral arthritis and equine infectious anaemia viruses and the *Salmonella* in Poultry Laboratory Proficiency Testing Programme. These programmes were organised by the Quality Assurance Unit of the Veterinary Laboratory Agency (UK). CVL also initiated preparation for the accreditation for ISO 17025.

Our future plans include developing molecular methods to test for pathogens that are difficult to culture, initiating an antibiotic resistance surveillance programme for zoonotic, indicator and pathogenic bacteria from livestock, aquatic animals and companion animals. Additional plans include establishing more specific tests for significant aquatic pathogens, mounting regular disease surveillance on imported



marine fish fry/fingerlings, the study of possible aetiologies for pathological hepatic changes observed in a number of marine food-fish species for example Threadfin and to establish additional diagnostics for Pathology.

### Keeping a Tight Rein on Animals for a Safe Environment

One of our ongoing missions is to protect the public from the dangers that are posed by stray animals while ensuring that the welfare of animals is not compromised. By the very manner of their existence, stray animals are more exposed to diseases that can potentially place humans and other animals at risk. Year 2001 was no exception as we continued to employ humane ways to control the stray animal populations.

The Stray Cat Rehabilitation Scheme continued to help keep the stray cat population in check. Achieved through sterilisation and responsible management of stray cats, this form of control is more humane and effective in the long term. Working closely with the Society for the Prevention of Cruelty to Animals (SPCA), this scheme has attracted the participation of all 16 Town Councils as at the end of 2001. It had also been extended to private areas with a management or resident's committee. The scheme has also increased public awareness on stray animal control and welfare issues.

Our Centre for Animal Welfare and Control (CAWC) continued to liaise with pest control companies. Commercial and industrial establishments were encouraged to engage pest control companies if they encountered stray dogs or cats in their premises. To date,

**Singapore continued to receive a 'clean bill of health'. Our nation had steered clear of major animal diseases.**

Town Councils have been the major organisations to engage pest control companies to catch stray cats in HDB estates.

A professor of National University of Singapore was engaged during the year to do a study of crows to assess the magnitude of the problem and formulate methods for crow control. The study results indicated that the control of food sources and habitat management is key to resolving the crow nuisance. During the year, the Ministry of the Environment took over the responsibility of crow eradication.

CAWC pound also saw a facelift in the year. A new ventilation system helped to reduce bad odours and breathe cleaner air into the pound. For the pound officers, the new environment also made working conditions generally safer and better.

Other measures were also taken to discourage cruelty of animals and to reinforce the importance of providing pets with a good, caring home.

During year 2001, CAWC encouraged pet shops to join forces and form the association, the Pets Enterprises & Traders Association (PETAS), with the aim of promoting responsible pet ownership while enhancing the image of pet shops.

### ► Animal Welfare and Control Division

FY2001	No.
<b>Licensing of Dogs</b>	
New dog licences issued	9,370
Dog licences renewed	28,546
Total:	37,916
<b>Control of Stray Animals and Bird</b>	
Stray dogs impounded	4,173
Stray cats impounded	6,637
Crows destroyed	23,104
Total:	33,914
<b>Animal and Bird Nuisance Cases</b>	
Dogs	4,520
Cats	5,382
Crows	2,309
Others	393
Total:	12,604
<b>Stray Cat Rehabilitation Scheme</b>	
Areas registered	138
Volunteers registered	463
Participating Town Councils	16 of 16
<b>Animal Welfare Education</b>	
Talks given to schools	90
Schools visited	58
Audience reached out	54,280

terminals. Tourists can now buy the pre-packed pest-free orchid flowers without applying for phytosanitary certificate from AVA.

Apart from keeping pests and diseases from entering the country, we continued to facilitate trade in various ways. The Plant Quarantine Newsletter was published to serve as a means to alert the traders on pest and disease outbreaks as well as provide information on control measures for major pests and revisions to import regulations imposed by trading countries. Appropriate control measures would then be taken by traders to prevent their exports from being rejected.

A bi-weekly report on the population distribution of whiteflies and thrips in selected farms also enables growers and traders to monitor their farms closely. A total of six dialogue sessions was also held with local traders during the year on fumigation requirements by Australian Quarantine & Inspection Service, AVA Inspection Tag, and CITES requirements on control of Ramin timber.

Our goals for 2002 include reviewing and updating the control of Plant Importation Rules as well as the treatment manual for pests and disease control. Plans to work with AQIS on export standards for orchid flowers and ornamental plants to Australia under ASFTA are on the cards. Also in the pipeline is working with New Zealand's Ministry of Agriculture and Forestry on export standards for Dracaena and Cordyline cuttings to New Zealand.

### ► Weeding Out Plant Diseases

Our comprehensive plant inspection programmes and stringent plant health standards had successfully kept major international quarantine problems away from Singapore again. This year proved to be another busy one with 1,307 import inspections with the total value of commodities inspected being \$24.3 million, 3,446,666 plant imports and the issuance of 1,503 plant import permits. On the export end, 20,255 phytosanitary certificates were issued.

Singapore continued to be free from South American Leaf Blight, Mediterranean and Queensland Fruit Flies, South America Fruit Fly and the Khapra Beetle in 2001. Keeping a close watch on endemic pests such as thrips, whiteflies, hispid beetles, fruit flies and diamondback moths at agricultural/horticultural premises had safeguarded our plant industry.

In response to the outbreak of the South America fruit flies (*Anastrepha spp.*), a three-month intensive monitoring programme was immediately carried out on the citrus fruit imports from South-West USA, and Central and South America.

We have also partly delegated pre-export inspection to accredited traders under the Assurance Certification Scheme (ACS). About 90% of our exported aquarium plants and 75% of the cut orchid flowers were inspected and certified through this special arrangement. The Scheme also covers the export of Niger seeds to USA, cocoa products to Australia and New Zealand and cut tobacco to Australia and ASEAN countries. The AVA Phytosanitary Tag was also introduced to facilitate the sale of cut orchid flowers at the airport

**Our comprehensive plant inspection programme and stringent plant health standards had successfully kept major international quarantine problems away from Singapore.**

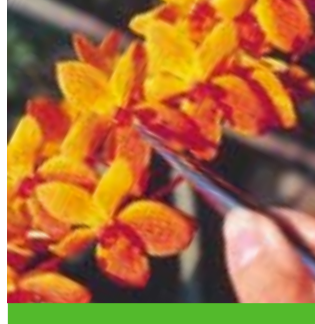




During the year, our hub for agrotechnology produced **426** million hen eggs, **5,370** tonnes of fish, **17,690** tonnes of vegetables, **101** million aquarium fish, **19** million stalks of orchids and **45** million ornamental plants.

## *Agrotechnology: Optimising Limited Resources*

The relentless push towards urbanisation has caused us to lose the valuable land we need to ensure a constant supply of food. Today, 90% of our food comes from abroad. The challenge of limited land resources is answered by agrotechnology which heralds the era of high-tech farms. Harnessing life sciences and technology for intensive, large-scale farming, we are able to optimise our limited resources, increase farm yield and enhance productivity. Other advantages brought about by the use of rapid automation and mechanisation of our farming systems include ensuring stable food prices and the safety of our food supply in Singapore.





### Agrotechnology Parks The Hub for Agrotechnology

As hotbeds for agrotechnological development, our agrotechnology parks are modern agriculture estates with the necessary infrastructure of roads, drainage, electricity and water supplies. Helping to meet our local consumption needs are six parks spanning a total land area of about 1,500 hectares. The six hotbeds are scattered all over Singapore from Lim Chu Kang, Murai, Sungei Tengah, Mandai, to Nee Soon and Loyang.

Some 737 hectares of land had been allocated to 238 farms while another 107 hectares of land outside the park was allocated to 45 farms as at March 2002. Sitting in these parks are layer farms for egg production, poultry farms, freshwater fish farms, vegetable farms, goat and cattle farms, orchid and floriculture farms. In addition, we have ornamental fish farms and marine fish farms in the sea. In 2001, our hub for agrotechnology produced 426 million hen eggs, 5,370 tonnes of fish, 17,690 tonnes of vegetables, 101 million aquarium fish, 19 million stalks of orchids and 45 million ornamental plants.

### Agri-Bio Park Where Innovation Takes Root

A 10-hectare Agri-Bio Park (ABP) has been developed, serving as a magnet for local and global R&D technological enterprises as well as companies producing agri-technology products such as animal vaccines, biologics, diagnostic kits for animal and plant diseases, and pest-resistant plants and bio-pesticides.

One of our two major tenants, undertakes R&D activities to develop and produce vaccines and biologics to give the aquaculture industry in the region a boost. The other major tenant breeds and supplies specific pathogen-free (SPF) and immuno-compromised animals for research and development.

The AVA-administered Marine Fisheries Research Department of Southeast Asia Fisheries Development Centre is also sited at ABP. It would soon be joined by AVA's Veterinary Public Health Centre as well as the Animal and Plant Health Centre. An agri-bio technology cluster will sit on ABP in years to come, serving as a powerhouse for tropical agri-biotechnology R&D and services.

### Research and Development Higher Productivity Through Innovation

To enable Singapore's agri-businesses to develop a competitive edge, research and development is imperative. Not only can we tap technology to improve variety and quality of our produce, we can also use it to achieve higher yields and higher value, putting Singapore on the path to being a regional hub for agricultural consultancy and services.

Many of our research projects are developed in collaboration with local and overseas institutions, as well as commercial parties.

### In-house R&D

Our in-house R&D has given rise to the seed plug transplanting system for the cultivation of higher value crops, and longer cycle crops for the vegetable farms. The big advantage of this technology is that it can help to reduce seed wastage, the manpower for bed thinning and increase the farm's productivity. Further studies would focus on optimising the transplanting system for higher productivity.

Studies on the use of food-based compost for vegetable cultivation had also led to the findings that compost made from brewery waste was better than soybean waste for the growth of caixin seedling.

### R&D with other Institutes

An innovative technology under development with Temasek Polytechnic is the hydroponic flood and drain aggregate method of cultivating orchids for the industry. This innovation will help to improve quality, increase yields in a shorter time frame, and cut down on labour costs.

A variety of identification studies with the Institute of Molecular Agrobiolgy, if successful, will enable farmers to guarantee the exact variety and gender of young dragonfish being exported.

In March 2002, an agreement on scientific exchange in aquaculture was struck with Japan's Fisheries Research Agency. This collaboration would boost our aquaculture R&D programme.

### R&D with commercial parties

We are actively involved in numerous R&D projects with commercial parties. Completed in April 2001, the establishment of the technology on deep netcage fish farming led to the successful culturing of several species such as seabass, snappers, trevally, and king fish (cobia).

A revolutionary new way of growing vegetables has been tested at our Sembawang Research Station since March 2001. Developed by an Israeli company, the system converts an ordinary 40-foot shipping container into a climate-controlled greenhouse for hydroponic plant production. The system is fully automated to plant, transplant and harvest vegetables, using robotic arms in an ideal controlled environment for optimal plant growth. No pesticides are used and the crops are clean enough to be eaten unwashed.

Using this system, vegetables can be farmed all year round regardless of the weather and location as long as electrical supply is stable. Within the same land area, it is able to deliver 100 times the yield of traditional methods using only 20 per cent of the manpower required by traditional farms. AVA helps the company to improve the yield and quality of crops by manipulating the environmental factors within the container.

Presently, we are giving a commercial company a helping hand by studying the different substrates available in Singapore for vermicomposting and the use of vermicompost as fertilisers for commercial vegetable growing. This project was initiated in December 2001.





Together with a local shrimp farm, AVA developed an innovative technique that processes dried shrimps using a vacuum oven in place of sun-drying. It not only significantly reduces the time required for drying shrimps from days to hours but also produces soft and crispy shrimps which can be eaten directly as a snack food. AVA also provided consultancy assistance for commercialisation of the project.

#### Technology Transfer Knowledge for Greater Competitiveness

To enable our farms to develop a competitive edge, we offer technical assistance and impart technology to our farmers through seminars, talks, training programmes and various technical advisory services. During the year, a species of marine Tilapia for farming in netcages was introduced to a food-fish farm. The farm was shown the proper technique for breeding the fish so that better hybrids could be obtained.

To preserve Singapore's reputation as one of the key export centres in the world for ornamental fish, we assist farmers in improving quality and breeding new varieties. Various stress resistance techniques were introduced to farmers to reduce post-shipment mortality in exported guppy without added costs. In another development, broodstock management and breeding technology of Arapaima was transferred to farmers, which enabled them to export the endangered fish species. This export is possibly the first in the world.

Vegetable farms were encouraged to use the seed plug transplanting technology developed by AVA to increase the number of planting cycles per year, thereby maximising the yield per unit area of farming land. In 2001, some 30% of vegetable farms adopted the seed plug transplanting system - especially for higher value crops.

Dialogues and seminars for farmers, investors and various industry associations were held regularly to facilitate technology transfer and obtain feedback. A national dialogue session with members of the Aquaculture Association (Singapore) had enabled us to gather feedback on their aquaculture practices including the problems encountered. This healthy exchange had helped us to formulate the regional guidelines for responsible aquaculture in Southeast Asia. A talk was organised for vegetable farmers on the Takahama Composting System from Japan to enhance their knowledge on composting.

Apart from talks and training programmes, we also extended advisory services to farms and monitored farm performance and production. Introducing new vegetable varieties to farms has been an ongoing effort to increase crop diversification and five varieties of leafy vegetables were introduced to seven farms during the year.

Two new vegetable farms adopting organic practices saw an increase in its production of leafy vegetables in 2001. This was after a six-month advisory service programme on soil, compost and disease diagnosis.



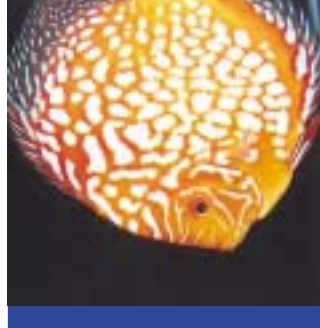
We also acted as a consultant to various farms which are working towards achieving various ISO certifications. We assisted a leading ornamental fish farm and trading company, to attain the Singapore Quality Class (SQC) award in May 2001.

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In FY2001, our Sanitary and Phytosanitary (SPS) certification is widely recognised in **144** countries. SPS covers the import, export and accreditation procedures; food safety; and the health of plants and animals.

## *Preserving the Quality of Life Through Stronger Ties*



To enjoy a stable supply of primary food at stable prices in Singapore, we must enhance the resilience of our agri-food supply. It is imperative that we diversify our external sources of food produce to avoid being overly dependent on any one source. As such, we are constantly identifying and reviewing potential sources through trade missions. As the national representative on agricultural matters, AVA also strives to facilitate free trade and maintain close ties with the global community in a spirit of exchange and cooperation.



### Trade Missions: Facilitating Fresh Food Imports

#### Fruit and Vegetables

Our visit to China has borne fruits. Our missions to the provinces of Shandong, Shanghai, Beijing and Inner Mongolia have yielded new contacts for our importers to source for fruit and vegetables.

During the bilateral meeting at Cameron Highlands in January 2002, visits were made to an organic farm that utilised Japanese technology and another farm which used mainly hydroponics cultivation and employed an automated system for cleaning and sorting fruited vegetables such as tomatoes. We also learnt more about the accreditation scheme for vegetable farms in Malaysia, where accredited farms are checked for agrochemical usage, microbial and heavy metal contamination in their produce.

#### Seafood

Our trade mission to Australia has also opened new opportunities for business. Together with our team which comprises fish merchants, food suppliers and caterers, we went round to the Sydney Central Fish Market, fish retail outlets, fish processing factories, aquaculture farms and research stations in New South Wales and South Australia.

#### Pork

To achieve greater resilience of our pork supply, a trip was made to Thailand to look into the feasibility of exports of frozen pork to Singapore. Our visits included a farm and two pig slaughterhouses.

#### Promoting Exports

Future missions will be directed to diversify food products such as leafy vegetables, chilled pork and chicken, and eggs.

#### Ornamental Fish

Despite the economic downturn in the financial year, our total Ornamental Fish exports experienced only a slight dip by 0.7%. Our top importers hailed from UK, US, Japan, Germany and France. During the year, we participated in the 2001 Taipei International Aquarium Exhibition. At the public seminar on 'Singapore Dragon Fish', we took the opportunity to publicise the quality assurance scheme for Dragon Fish administered by AVA.

### International Relations: Towards Closer Ties and Free Trade

As a national representative on agricultural matters, AVA strives to facilitate trade and enhance economic cooperation with the global community through an exchange of technology and knowledge. By doing so, we ensure that the food produced by overseas farms is in line with our safety and quality standards when it is eventually exported to Singapore.

#### Collaboration with ASEAN

During the year, AVA participated actively in various ASEAN activities and projects, including the establishment of an information system to monitor developments in the production, consumption, reserve stock and price of rice. A series of workshops, co-organised with the International Life Science Institute under the ASEAN Public

Awareness programme, was conducted for regulators and decision-makers of ASEAN member countries. We also organised a vegetable forum together with the AVRDC and ASEAN Secretariat, to review the progress made in the implementation of seven projects that were approved at the 22nd Meeting of the ASEAN Ministers on Agriculture and Forestry (AMAF).

In October 2001, the Minister for National Development, Mr Mah Bow Tan led a delegation of AVA officers to the 23rd AMAF Meeting in Indonesia. Among the 8 projects endorsed by the Ministers included Singapore's initiative on the establishment of an ASEAN-Asian Vegetable Research and Development Centre Regional Network for vegetable research and development. In addition, the Ministers also endorsed the adoption of an ASEAN stand in dealing with Bovine Spongiform Encephalopathy (BSE) or "Mad Cow Disease", which is in line with the measures adopted by Singapore.

#### Extending Technical Assistance

Between June and October last year, a total of six training courses was run for participants from all over the world. A Study Attachment on Dragon Fish Farming was specially arranged for two Brunei Fisheries Officers.

As part of the Singapore Technical Assistance Programmes to Laos, our experts have helped to set up a demonstration foodfish hatchery in Laos. We also lent a helping hand by providing items such as chemicals, fish brooders and equipment to the hatchery and its laboratory.

A training course on Animal Quarantine was specially conducted for Myanmar participants.

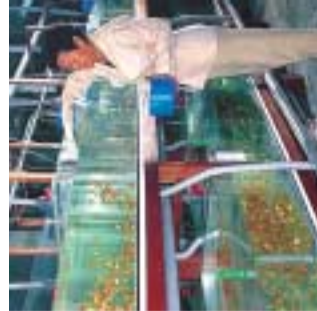
In addition, three training courses were conducted for our Vietnamese participants on 'Fish Processing and Packaging', 'Tissue Culture of Orchids', and 'Pre and Post Harvest Technology in Fruit and Vegetables'.

An MOU was also signed on 12 October 2001 with the Riau Government on transferring vegetable farming and post-harvest technology to Indonesian farmers. Ultimately, the vegetables produced can be exported to Singapore. A win-win situation for Singapore and Indonesia, this establishment will create employment opportunities for many Indonesian farmers in the Riau province. The first phase of the project, the establishment of a 1-hectare Demonstration Farm (DF), was completed in March 2002. With the help of the Riau Agriculture Department, AVA trained the farmers in farm construction and the best practices in the cultivation of quality leafy vegetables.

#### Free Trade Agreements

During the year, AVA actively assisted in the preparation for Singapore's negotiations on Free Trade Agreements (FTA) with Japan, Australia, US, Canada and the European Free Trade Association (comprising Iceland, Norway, Switzerland and Liechtenstein). AVA was mainly involved in the areas on mutual recognition agreement on food, and sanitary and phytosanitary (SPS) measures for trade in agricultural products and foods. The SPS measures covered the import, export and accreditation procedures and certification on safety of food products, and the health of plants and animals and their products.





The negotiation for the Australia-Singapore FTA saw significant progress. Both parties agreed to exchange information on the technical assistance activities in the areas of SPS and quarantine issues. For FTA with the US, our involvement included the accession to the International Convention for the Protection of New Varieties of Plants (UPOV Convention), and the provision for protection of test data for marketing approvals of agricultural chemical products.

#### AVA:

#### The Designated CITES Management Authority

Apart from assuming the important role of facilitating trade in agricultural products and primary produce, our scope of work also includes protecting wild animals and plant species from being exploited by international trade.

As the national authority responsible for the implementation and enforcement of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), we are committed to the protection of endangered wildlife.

In FY2001, the schedules to the Endangered Species (Import & Export) Act were amended to include species listed on CITES Appendix III and artificially propagated CITES listed plants. These amendments came into effect on 2 Jan 2002.

Discussions on how Singapore could export our captive-bred arowanas to USA were part of the negotiations at the US-SG Free Trade Agreement (FTA).

#### Enforcement of CITES

In FY2001, an investigation had led to the prosecution of a retailer and importer for the sale of bear gall bladder and bear bile products in Singapore.

In another case, a Singaporean pleaded guilty to importing 25,000 pieces of whipsnake skins without AVA permits. In May 2001, a Singaporean was prosecuted for being in possession of 26 heads of venomous snakes and another, for 46 heads of assorted reptiles, amphibians and arachnids.



#### In the Pipeline

Future plans include stepping up inspection on CITES products traded and proactive enforcement work, as well as setting up of CITES Information Booth at the Changi Airport.

Apart from assuming the important role of facilitating trade in agricultural products and primary produce, our scope of work also includes protecting wild animals and plant species from being exploited by international trade.



A customer perception survey conducted in March 2001 showed that AVA met the service expectations of more than **70%** of the customers in the industry. AVA also attained a mean score of **5.26** out of **7** for service quality.

## Towards Organisational Excellence



AVA's organisational structure and human resource practices were reviewed to build a robust organisation capable of meeting the challenges of a rapidly changing economy. To this end, an average of 14.97 days was allocated to training each member of our staff.

## AVA's IT Master Plan taps on info – communication technology for the delivery of more customer-centric, online public services.

### Realising the IT Master Plan

The IT Master Plan aligns IT systems with the AVA mission, critical success factors and key processes. It taps on info-communication technology for the delivery of more customer-centric, online public services.

During the year, plans were mapped out for the implementation of three new online services, namely, Electronic Certificates, Licences and Permits System (eCLIPS), online application of Inspection Services and the Laboratory Information Management System (LIMS).

When implemented, eCLIPS will provide businesses and individuals with greater convenience when applying, renewing, making payment or enquiring on the status of licences, permits and health certificates. Digital Watermark Technology will be incorporated in eCLIPS to enable end-users to print selected licences or permits on their own.

With the new online Inspection Services, field inspectors can access inspection details captured in their hand-held computers and transfer data to the main system for analysis and decision-making.

LIMS will facilitate internet applications for laboratory services, checking of status and providing the test results. LIMS will interface with the Financial Accounting and Resource Management System for fee processing and the online Inspection Services for the results of samples tested. The new system will be used at the Veterinary Public Health and the Animal and Plant Health laboratories when they open at the Agri-Bio Park.

### Enhancing our Systems to Meet Future Challenges

Regulatory control features in the TradeNet system, one of the key information systems regulating food safety and supply to Singapore, were enhanced so that any combination of product code, establishment, importer and country of origin could be adjusted for inspection and clearance. This enhanced system, together with the TradeNet Auto-Processing System and the Veterinary Public Health System, helps contribute to ensuring better food safety in Singapore.

In February, Phase 2 of the Human Resource and Payroll System development was completed with the addition of 15 modules to enable staff to access their pay information on the intranet.

An integrated library system was introduced in June 2001. It enables users to speedily access the web-based OPAC (Online Public Access Catalogue System) to search for a particular book in AVA's library, hence facilitating research activities.

The AVA intranet that was implemented was widely used by staff.

As early as November 2001, AVA began preparing for the transfer of the Food Control Department from the Ministry of Environment. The Food Inspection System, Enforcement Application System and a workflow application for enforcement action were finalised along with interfaces with external parties such as the CPF Board, TradeNet System and the Subordinate Courts. The FCD systems and network to the AVANet were completed on schedule and were resided in AVA's Computer Centre.

### Developing Electronic Services Online

In line with the Government's vision for easier access to public services on the internet, development of the electronic Dog Licensing System (e-DLS) was completed in June 2001.

With e-DLS, customers can now effect application, renewal and payment of dog licences in the comfort of their homes. e-DLS was officially launched in November.

### Strengthening our IT Infrastructure

A VSAT link was used to connect the Marine Aquaculture Centre at St. John's Island via satellite to the AVA Headquarters for access to the Government Electronic Mail System and Intranet, the Government Intranet and the Internet, making it a total of 16 AVA service centres and offices that are connected. The servers at Jurong Veterinary Public Health Laboratory and AVA Computer Centre were consolidated for cost-savings and efficiency.

IT security was enhanced together with the security review and risk assessment project to improve system availability, confidentiality and integrity. Planning for disaster recovery and an Intrusion Detection System was also completed.

The Enterprise ProActive Support Environment and Professional Support Services contract was reviewed under EASE II. A new feature in EASE II is the online portal which provides information on problem logs, network utilisation, server status and infrastructure administration.

### Our People, Our Strength

In Singapore, despite the high dependence on imported foods, Singaporeans enjoy a safe and resilient supply of food throughout the year. Working quietly to support the gastronomic appetites of the nation is our team of AVA officers who continually source out new food supplies, screens them to ensure they meet our food safety standards, and innovates to improve food yields to meet our future needs.

In another area, our AVA officers work relentlessly to safeguard Singapore from major exotic animal and plant diseases, protecting endangered animal and plant species from exploitation.

These dedicated people devote their working life to enhance our social safety net, to ensure a healthier and more livable environment for our people.



**The journey towards achieving the People Developer Standard (PDS) began in 2001. To build a competent and relevant workforce to serve the nation, AVA started a systematic process of developing staff and reviewing its human resource practices to align them with corporate objectives.**

**An Excellent Organisation in the Making**  
In line with our ambition of building a robust organisation, several organisational changes and initiatives were undertaken in FY2001. In May, a review of AVA's organisational structure and human resource practices was launched. The new organisational structure aimed to empower Department Heads in reviewing workflows and processes for improved efficiency.

To prepare staff for the organisational changes, AVA invested in staff workshops to train them on managing organisational excellence, and, for operational staff, to prepare them for "Business Process Re-engineering". In November, a staff conference was held to brief them on the new organisational structure.

A staff work culture survey was also conducted in June 2001 to get a dipstick feel of staff's perception of the work culture and their alignment with the new vision and mission of AVA. The findings were favourable, showing staff commitment and clarity of understanding. The need for greater training and development, and a review of human resource policies and plans were taken seriously and addressed.

**Building a Resilient and Competent Workforce**  
The journey towards achieving the People Developer Standard (PDS) began in 2001. To build a competent and relevant workforce to serve the nation, AVA started a systematic process of developing staff and reviewing its human resource practices to align them with corporate objectives. Training and preparation steamed ahead since its launch, so that we can attain the goal by 2003. By December, a Work Review Form was launched together with user guides and training directory.

Moving forward, Individual Training Plans that dovetail into a Total Training Plan will be launched, to guide the training of our people in both technical and personal developmental skills.

As a commitment to building a resilient workforce capable of meeting the challenges of a rapidly changing economy, AVA committed an average of 14.97 days towards training each member of our staff. A host of training courses was made available to staff members, ranging from technical upgrading to enhancement of management skills and beefing up core competencies.

In addition, AVA also sponsored four officers for overseas post-graduate studies and arranged special language courses for those who need to liaise with regional counterparts, to help them in their personal effectiveness in achieving their tasks.

To foster the spirit of innovation, an Innovation Committee was formed, together with the appointment of "innovation activists" who work with staff to promote the concept from "bottom-up" and to foster cross-boundary cooperation.

**Motivating through Awards and Rewards**  
Believing in the philosophy that care begets care, AVA implemented enhanced staff benefits and recognition schemes during FY2001. As part of the Career Development System, an Internal Resourcing System (IRS) was implemented in November 2001, giving staff the first opportunity for vacancies that arise within AVA.

A new Flexi-Benefits Scheme (FBS) introduced during the year allows individual staff to claim up to \$315 per year for expenditures on day-care, childcare and children education expenses, holidays and tours as well as home improvement.

Three of our staff members received due recognition through the Public Administration Medals given as part of the National Day Awards, while two more received Efficiency Medals. AVA also presented Long Service Awards to our staff retirees during the Annual Dinner and Dance function in appreciation of their dedication to work.

Positive motivation also came in the form of empowering and rewarding staff who contribute to work improvements. Staff formed Work Improvement Teams (WITS) to brainstorm and recommend projects and received token rewards. In 2001, we completed 96 projects, which were all accepted for implementation. Two of our WITS teams even won silver awards in the Public Sector EXCEL Convention.

In another scheme, AVA staff achieved a full 100% participation rate in the Staff Suggestion Scheme, where the implementation ratio of the suggestions was 0.57 per staff member. On average, each of us contributed 5.07 suggestions to improving our organisation and work. For our enthusiasm, our Minister, Mr Mah Bow Tan, awarded the "Dynamic SSS Award" to AVA. One of our officers, Ms Iris Yeong Yuen Kwan, also received the Merit award as an MND "Quality Suggester" during its 5th Awards Ceremony.

**Strengthening Bonds through Work and Play**  
AVA spares no effort in cultivating a cohesive, caring and productive work team. Our management promotes cohesion through shared values, transparent systems and two-way communications.

Our CEO hosted tea sessions with staff to promote dialogue and feedback. Three dialogue sessions were held with our union AUSBE.

Several recreational activities were organised. Family Day was one of the key social get-togethers held on 8 July 2001 at the Singapore Zoological Gardens, where staff and their families came together in fun and games. The AVA Annual Dinner and Dance provided another avenue for staff bonding. It was well attended by more than 430 staff members and guests. Through tours such as the visit to Pulau Semakau, a waste disposal landfill area, and Siem Reap, staff enjoyed avenues for relaxing and learning as a group.

**Raising Productivity through a Healthy Work Culture**  
Many initiatives were implemented to help our staff achieve lifetime health while at work. They range from free health screening to simple daily exercises at the workplace. At Sembawang Research Station, staff were encouraged to start their day with a morning exercise everyday. Over at our headquarters and Jurong Veterinary Public Health Centre, an afternoon exercise has come to be a part of our daily regime. To enable our staff to think and perform better with a healthier body, an e-fitness video was specially produced and released on the Intranet for exercising at workstations.

**Our CEO hosted tea sessions with staff to promote dialogue and feedback. Three dialogue sessions were held with our union AUSBE.**





As a commendation for our Work Health Programme, AVA received the Singapore H.E.A.L.T.H. Award (Silver Medal) from the Prime Minister at a ceremony held on 2 September 2001.

#### Caring for our Nation

At AVA, we take the responsibility of safeguarding the well-being of our nation, through the enhancement of our social safety net and facilitation of agri-trade, as the reason to why we exist.

#### Customers First

AVA serves the needs of a broad spectrum of people. Customer satisfaction is a high priority.

To this end, a customer perception survey was conducted in March 2001 to enable AVA to track its service performance against customer expectation, and to identify service gaps for making improvements. The survey findings were encouraging, as more than 70% of the customers in the industry felt that AVA had met their expectations. AVA also attained a mean score of 5.26 out of 7 for service quality.

Despite the favourable findings, AVA will continue to review current service standards and work on fulfilling customers' needs more effectively.

#### Shared Responsibility as a Win-Win Proposition

Doing all we can, as best as we could, is not enough to ensure total well-being of our people. It is also AVA's responsibility to raise the awareness among our people of public health issues and responsibility towards their pets, so that members of the public can play an individual role in improving our living environment.

#### Food Safety Awareness

AVA embarked on a national public education programme to raise awareness of food safety as a public health topic. This was done through educational advertorials in newspapers, collaterals and publication of such consumer education on the AVA website.

In March, AVA and the Health Promotion Board (HPB) jointly staged two public forums at the Suntec City to promote consumption of safe vegetables. We also provided training to a group of 50 nurses who manages the HPB Health-Line, on the proper methods for purchase, storage and handling of vegetables.

AVA also tried to reach out to students through the Learning Journeys Programme, where school visits to our Agrotechnology Park were organised to help students better appreciate the need for using technology to increase yields on land-scarce Singapore.

More public education programmes are being planned to further raise the awareness on food safety against a backdrop of a globally growing trend of foodborne diseases.



An education resource centre was also set up at our CAWC in February. This resource centre showcases informative posters on responsible pet ownership. Other highlights include cases of animal cruelty and issues on stray animals. Many visitors have given positive comments on the informative gallery.

#### Plant Education

In June, AVA participated in the 4th Skyrise Gardens 2001 exhibition where we shared knowledge on vegetable and fruit tree growing on a rooftop garden, using different farming techniques. The exhibition attracted more than 109,000 visitors.



**AVA Staff Cares**  
AVA staff also got into the act of giving and caring for the community through volunteerism and fund-raising for charity. Our efforts were recognised by the Community Chest of Singapore, who awarded us with a bronze medal.

Staff members were encouraged to do their part for the society through various volunteerism projects. One of them, spearheaded by our CEO, was a Fruit Orchard Programme for Teen Challenge at Choa Chu Kang and Bukit Batok Hostel. Another similar project was launched for Perduas, a Muslim Youth Organisation.

AVA volunteers visit the centres to impart their horticultural skills to their residents. In another volunteerism project, AVA staff sold plants to raise money for charity at the "NVC Wonderful World of Volunteers Fair" at Suntec City. On another occasion, staff got together to organise a Care and Share Day to raise funds for charity. Through a Charity Bazaar, staff raised more than \$11,800 for "The Straits Times School Pocket Money Fund" project.

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### ► Staff Strength

Categories of Staff	Food and Veterinary Administration	Food Supply and Technology	Corporate Development and Support	Total
Management /Professional	118	53	41	212
Technical Support	106	117	6	229
Non-technical Support	37	18	43	98
Operations Support	88	112	5	205
Total	349	300	95	744

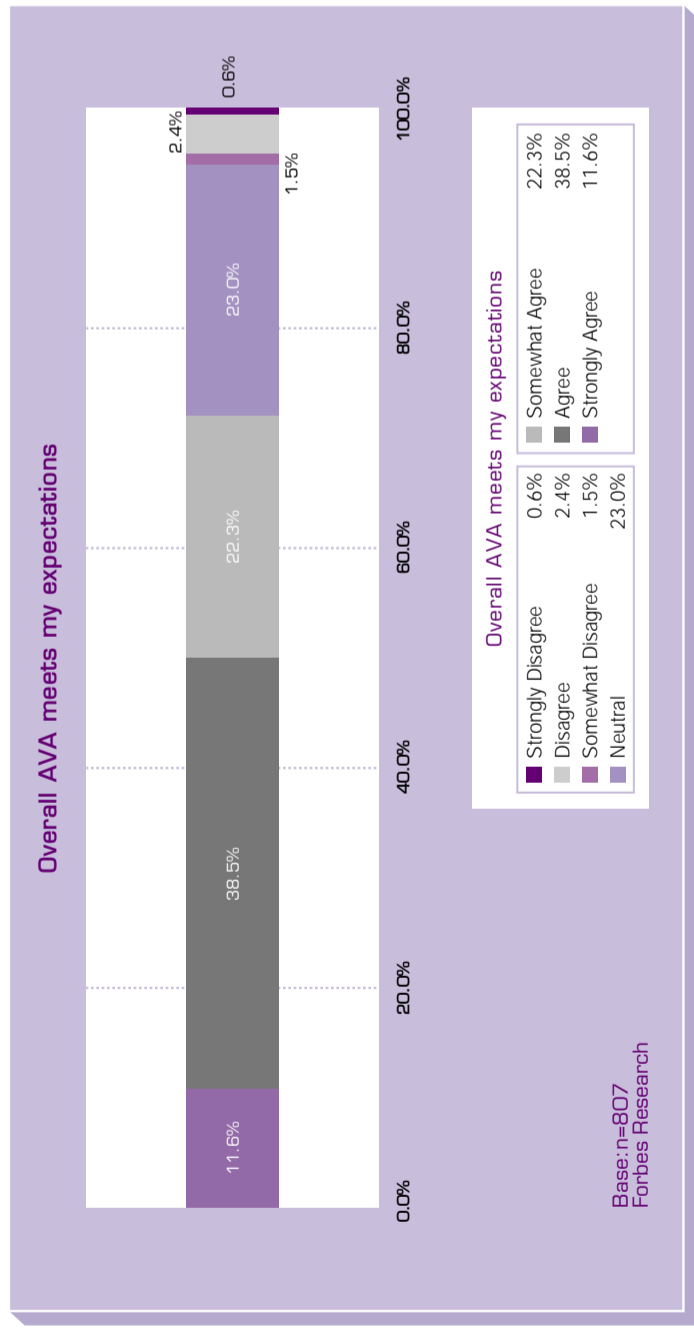
### ► WITS

Holding Strength	No. of WITS	No. of Completed Projects	No. of Projects Accepted for Implementation	No. of Implemented Projects	Project Ratio	Implementation Ratio
744	48	96	96	96	2.00	1.00
Ministry's FY2001 Target					1.70	1.00

### ► Performance in SSS for FY2001

Holding Strength	No. of First Time Suggesters	No. of Suggestions	No. of Implemented Suggestions	Suggestions Ratio	Participation Rate (%)	Implementation Ratio
744	744	3774	2167	5.07	100%	0.57
Ministry's FY2001 Target				5.00	100%	0.53

► Customer Perception Survey



**Distinguished Visitors**

During the year, various dignitaries visited AVA for discussions and explorations for collaborative work, and to tour our various centres and Agrotechnology parks.

Among the dignitaries received were:

**April 2001**

- Mr Yang Zhi Xin, Vice Secretary-General of Liaoning province, China, and his delegation (To discuss the import of frozen pork and processed egg product from Liaoning province)
- Vice-Mayor, Beijing, China, and his delegation (To tour the Veterinary Public Health Laboratory)

**June 2001**

- Li Ronggen, Vice-Governor, Guangdong, China, and his delegation (To study the current agricultural produce, circulation and market systems in Singapore and also to visit the animal and poultry slaughter and processing facilities)

**August 2001**

- Datuk Effendi Norwawi, Minister for Agriculture, Malaysia, and his delegation (Visit on the invitation of Mr Mah Bow Tan, the Minister for National Development)

**October 2001**

- HE Mounkeo Orabou, Governor of Vientiane Province and his delegation (To study the Marine Fisheries Research and Development Centre (MFRD) and its fish processing facilities)

**November 2001**

- HE Siasavath Savengsuksa, Deputy Minister of Commerce, Lao PDR (To study the Marine Fisheries Research and Development Centre and its fish processing and product development facilities)
- Vice-Minister for Fisheries, Vietnam, and his delegates (To tour the Marine Fisheries Research and Development Centre)

**March 2002**

- Mr Idris Belawan, Permanent Secretary, Ministry of Industry and Primary Resources, Brunei, and his delegates (To tour the Veterinary Public Health Laboratory)

- Director-General, Livestock Breeding and Veterinary Department, Myanmar, and his delegates (To discuss the prospects of exporting table eggs from Myanmar to Singapore)



# AVA Service Centres



## Jurong and Senoko Fishing Ports

The Jurong Fishing Port (JFP) is a port-of-call for foreign fishing vessels for the landing, wholesale and distribution of fresh fish. A total of 106 AVA-licensed fish merchants currently operates in JFP. In FY2001, JFP handled 76,437 tonnes of fish imported from the five major fish exporting countries, namely Indonesia, Malaysia, Thailand, India and Myanmar. Of the fish imported, 11,882 tonnes were tuna transshipment. A total of 6,008 vessels called at JFP during the year.

The Senoko Fishing Port (SFP) serves as a home base for the local fishing fleet, handling both local and imported fish. A total of 25 AVA-licensed fish merchants is currently operating here. Local production comprises fish landed by local fishing trawlers, fish from kelongs and fish farms. In FY2001, 13,960 tonnes of fish were handled at SFP. A total of 569 vessel calls was made by local trawlers.

## Horticulture Service Centre

The Horticulture Service Centre continues to play a key supporting role in the horticulture industry. It participated in the annual Singapore Flower Festival held from 6 to 9 September 2001. In 2001, the Centre produced some 20,000 clones of a new hybrid named Mokara Singa Gold and introduced another new hybrid named Mokara Lion's Gold to the industry. Set up to encourage breeding of orchids by the industry and to provide growers the opportunity to select their own unique varieties, the seed pod culture service continues to be popular among local growers. A total of 99 orchid seed pods was received and 20,000 rare and exotic ornamental plants were cloned in FY2001.

## Marine Aquaculture Centre

A new Marine Aquaculture Centre was constructed on St. John's Island to support the development of large-scale fingerling production and deep netcage fish farming. The Centre, comprising a hatchery and a fish farm with ancillary support facilities, is being built at a cost of more than \$30.0m. By end FY2001, many of the facilities had been completed and were being commissioned. Preliminary results of hatchery production of seabass, trevally, kingfish and threadfin using the facilities have been encouraging. Hatchery technology developed will be identified for Intellectual Property Rights (IPR) protection so as to enable continual and rapid optimisation of valuable innovations created.

## Marine Fisheries Research Department/ Southeast Asian Fisheries Development Centre

As a member of the Southeast Asian Fisheries Development Centre (SEAFDEC), Singapore manages the Marine Fisheries Research Department (MFRD) through AVA.

MFRD continued to aid the transfer of technology to the fish processing industry and government sector both regionally and locally through eight research projects and two regional training courses conducted in FY2000. A total of 69 people from around the region was trained in FY2001.

## Central Veterinary Laboratory

The Central Veterinary Laboratory (CVL) provides diagnostic services for the detection and identification of diseases in animals and birds, as well as quality control testing services for vaccines. In addition to providing laboratory support for AVA's disease surveillance programmes, CVL also serves farms, veterinary clinics, private and government organisations as well as the public. The number of laboratory tests performed reached an all-time high of 155,930 tests in FY2001, an increase of 6.99% compared to the previous year.

## Plant Health Centre

The Plant Health Centre is a resource centre providing analytical and diagnostic services for the identification of insect pests, diseases and nutrition problems for all plants in Singapore. The services include soil and growth media nutrient analyses, as well as providing advice, training and consultation on pest control and disease management.

The Centre also conducts plant health training courses on pests and disease management for orchid and aquatic plant cultivators as well as for students from Ngee Ann Polytechnic taking the Diploma in Horticulture and Landscape Management. In FY2001, 13,567 lab tests were carried out.

## Veterinary Public Health Laboratory

The Veterinary Health Laboratory (VPHL) is a regulatory laboratory for food analysis. It offers a comprehensive range of analytical services for the detection of a wide range of food-borne pathogens and chemical contaminants such as antibiotics, growth promotants, hormones, pesticides and other drugs in food. It is also the national reference laboratory for pesticide residues. Apart from providing critical laboratory support to AVA's food safety programmes, VPHL also provides analytical services to the food industry as well as government departments and statutory boards. In FY2001, 1,013,901 tests were conducted on 71,438 samples of imported and locally-produced food products, including the fresh and the processed.

## Freshwater Fisheries Centre

The Freshwater Fisheries Centre is responsible for the development of the ornamental fish industry. To facilitate trade, it provides fish health certification for export of ornamental fish consignments and trade-related services, like issuance of import/export/transshipment license. It works with the farmers and exporters to undertake various studies to improve farm production, such as development of water recycling system, and fish survival during air-shipment.

## Centre for Animal Welfare and Control

The Centre for Animal Welfare and Control (CAWC) is a one-stop centre for matters pertaining to animal welfare and control. It is also responsible for regulating and enforcing the licensing of dogs, pet establishments and pet/animal exhibitions. CAWC investigates cases of animal nuisance and implements programmes to control stray animals and pest birds. Veterinary examinations on dogs incriminated in biting incidents are undertaken to ensure that the biting dog is free from rabies that may have inadvertently been introduced into Singapore. CAWC also handles cases relating to animal welfare and promotes responsible pet ownership through educational talks and informative materials.

A new Animal Welfare Education Branch was set up to promote animal welfare and responsible pet ownership through education.

In FY2001, CAWC maintained a register of 37,916 licensed dogs in Singapore, handled 12,604 animal and bird nuisance cases, and impounded or destroyed 33,914 stray animals or pest birds.

# Performance Indicators

## ► Food Supply and Safety

### Outcome Indicators

Objectives	Outcome Indicators for FY2001	FY2001 Actual Performance
Approve and ensure a resilient supply of safe primary foods to Singapore	Number of establishments/ countries accredited for export of agri-foods and livestock to Singapore	208 overseas export farms from 4 countries (West Malaysia, Indonesia, Japan, and Australia) were accredited for export to Singapore (26 for eggs, 181 for poultry and 1 for pigs)
Set and enforce standards on safety of primary foods and implement an integrated food safety system through a stringent integrated and professional system of checks and surveillance from source to before the retail chain	Number of countries exporting agri-food to Singapore Number of food poisoning outbreaks per 100,000 population directly attributable to contaminated imports of meat, fish, vegetables and fruit	94 countries exported agri-food to Singapore No cases of food poisoning outbreaks reported per 100,000 population directly attributable to contaminated imports of meat, fish, vegetables and fruit

### Output Indicators

Activity	Actual Volume FY2001	% Target Achieved
Import Control Documentation	429,838 permits	107.5%
Food Safety Inspection	300,505 tonnes	100.2%
Laboratory Testing and Health Certification Services	1,013,901 lab tests	192%*

\* Increased laboratory testing is due to an increase in AVA's new initiatives and monitoring programmes as well as food safety issues arising from chemical spills, suspected food poisoning cases etc.

### Service Quality Indicators

Activity	Key Performance Target	Actual Level for FY2001
Import Control Documentation	To process 99% of the permits within 1 working day	100% of the permits processed within 1 working day
Food Safety Inspection	To clear 95% of the normal meat consignments within 2 working days	99.6% of normal meat consignments cleared within 2 working days
Laboratory Testing and Health Certification Services	To issue laboratory reports and health certificates for 90% of cases within 12 working days from receipt of samples	94.37% cases of laboratory reports and health certificates issued within 12 working days from receipt of samples
Management of Fishing Ports and Markets	To process applications of arrival report and port clearance within 1 hour	100% of applications of arrival report and port clearance processed within 1 hour

## ► Animal & Plant Health

### Outcome Indicators

Objectives	Outcome Indicators for FY2001	FY2001 Actual Performance
Set and enforce standards on animal health, animal welfare and plant health	Percentage freedom from important animal and plant disease	98.2% or 109 free from a total of 107 animal and 4 plant diseases (i.e. except Salmonella enteritidis and Newcastle's disease)
	Number of animal cruelty cases (leading to prosecution) per 100,000 human resident population in Singapore	Zero cruelty case (leading to prosecution) per 100,000 resident population

### Output Indicators

Activity	Actual Volume FY2001	% Target Achieved
Prevention and control of diseases of animals and plants	71,890 import documents 26,889 inspections 167,439 lab tests	99.9% 103.4% 128.8%
Control of animal nuisance and animal cruelty	37,633 licensed animals and animal premises 17,580 investigations 31,547 animal pest eradicated	101.7% 109.9% 98.6%

### Service Quality Indicators

Activity	Key Performance Target	Actual Level for FY2001
Prevention and control of diseases of animals and plants	To undertake an inspection within 2 working days upon arrival of import To issue first laboratory test within 10 days from receipt of samples	99.8% were inspected within 2 working days upon arrival of import 95.9% first laboratory test results were issued within 10 days from receipt of samples
Control of animal nuisance and animal cruelty	To issue a dog licence within one working day To respond to requests for investigation within 2 working days	99.9% of dog licences were issued within one working day 93.2% of requests were responded within 2 working days

### Agritechnology Development

#### Outcome Indicators

Objectives	Outcome Indicators for FY2001	FY2001 Actual Performance
Develop the agri-industry to meet part of the local fresh food consumption requirement	Quantity of fish and leafy vegetables produced and supplied to Singapore by local and Singapore-owned farms in the region	Marine fish – 1,575 tonnes
Develop the agri-industry and agri-business sectors to attain regional excellence		Leafy vegetables – 8,622 tonnes

#### Output Indicators

Activity	Actual Volume FY2001	% Target Achieved
Management of Agrotechnology Parks	335 farms 89 fish culture farms	83.8% 98.9%
Technology Development and Services	23 R&D projects undertaken 25 service projects undertaken	109.5% 156.3%



### Service Quality Indicators

Activity	Key Performance Target	Actual Level for FY2001
Management of Agrotechnology Parks	To issue 100% farm licences within the same day of application To complete processing 100% of fish culture farm licence applications and inform applicants within 3 months	100% of farm licence issued within the same day of application 100% fish culture farm licences issued within 3 months
Technology Development and Services	To complete 90% of projects with not more than 5% over-run of scheduled time frame and specified budget	100% of projects were completed with not more than 5% over-run of scheduled time frame and specified budget

### Trade Facilitation

#### Outcome Indicators

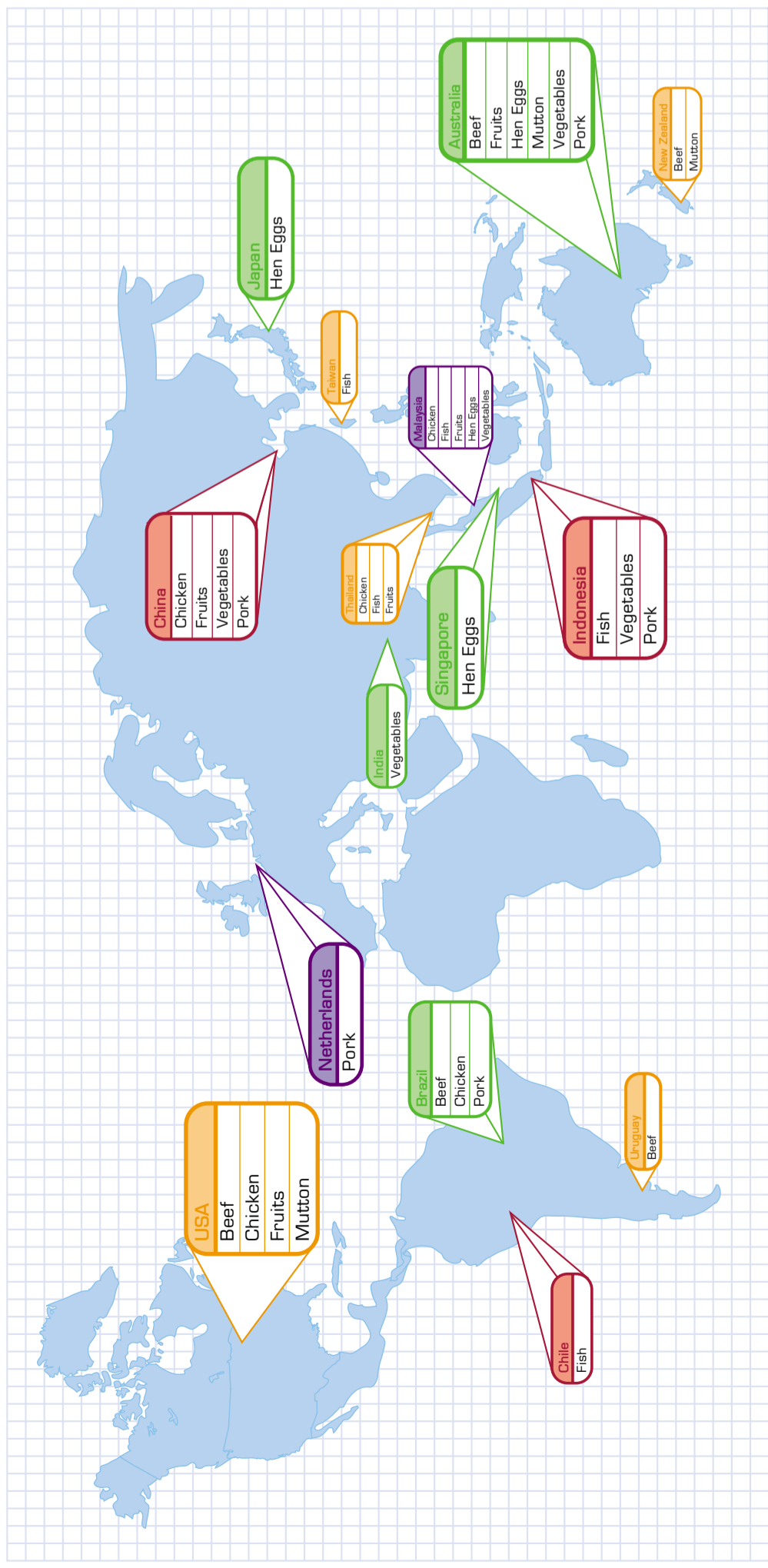
Objectives	Outcome Indicators for FY2001	FY2001 Actual Performance
Facilitate trade in agricultural products and primary foods through the provision of inspection and health certification services including the management of the Jurong and Senoko fishing ports and markets	Number of countries recognising our certification services	144 countries recognise our SPS certification

### Output Indicators

Activity	Actual Volume FY2001	% Target Achieved
Animals, birds and plants	34,146 export documents issued 22,970 health inspections	94.9% 99.2%
Ornamental and food fish	28,652 consignments handled	137.4%

### Service Quality Indicators

Activity	Key Performance Target	Actual Level for FY2001
Animals, birds and plants	To issue export documents within 3 working days from date of application or date of inspection To keep rejection rate below 0.3% of export documentations	99.9% of export documents were issued within 3 working days from date of application or date of inspection Rejection rate is 0.02%
Ornamental and food fish	To process 100% health certificate applications within 2 working days To keep rejection rate below 0.5% export consignments	100% health certificate applications processed within 2 working days Rejection rate is 0%



*Major sources of supply*

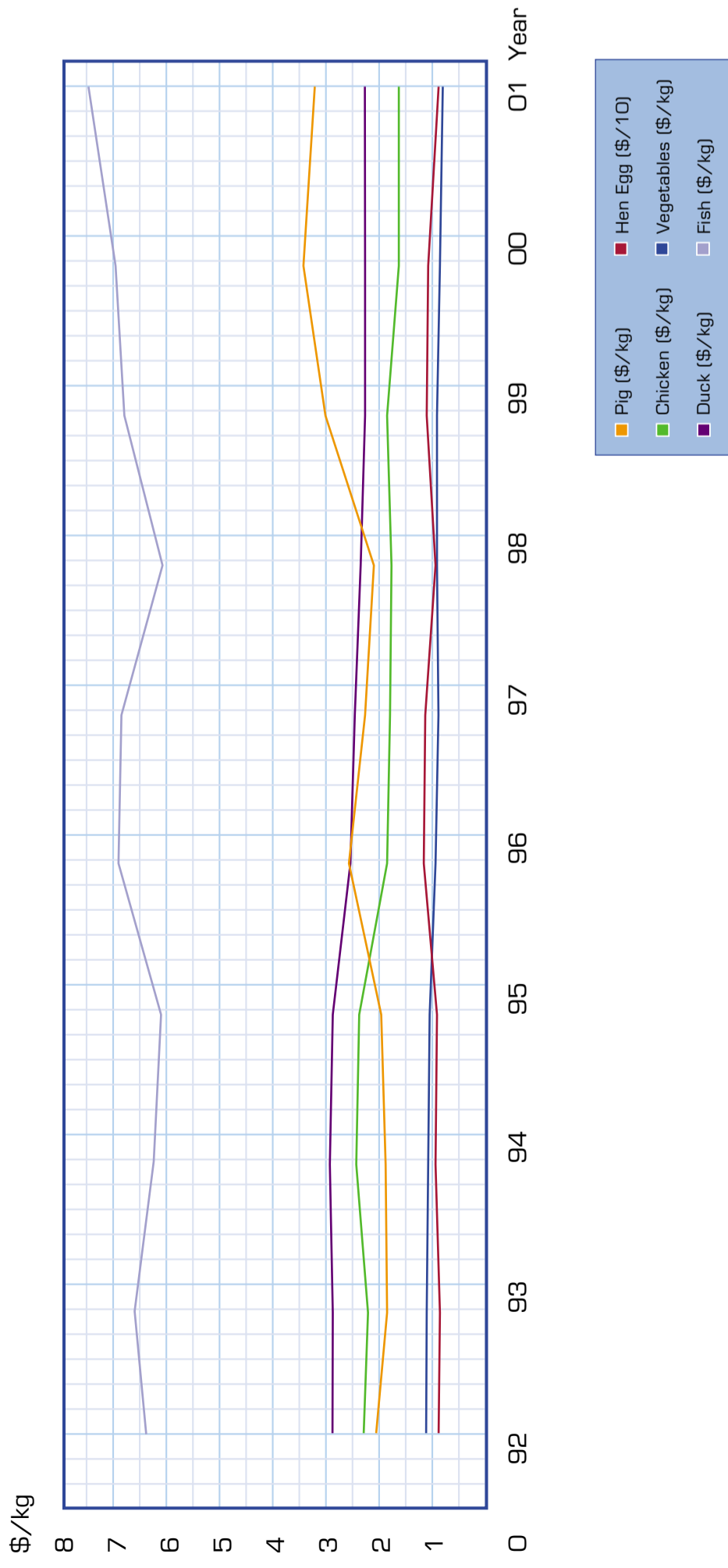
## Consumption vs Import Figures (Jan – Dec 2001)

	Beef (tonnes)	Mutton (tonnes)	Pork (tonnes)	Poultry (tonnes)	Fish (tonnes)	Fruit (tonnes)	Vegetables (tonnes)	Eggs (tonnes)
Consumption	13,772	9,656	71,720	155,188	97,366	338,595	340,467	57,310
Import	13,923	9,760	72,088	156,011	104,854	409,476	352,919	36,125

## Per Capita Consumption

	1997	1998	1999	2000	2001
Poultry (kg)	36.9	34.3	42.2	40.3	37.6
Pork (kg)	23.8	22.7	15.3	18.0	17.4
Beef (kg)	3.5	2.9	3.7	3.4	3.3
Mutton (kg)	2.4	2.5	2.5	2.5	2.3
Fish (kg)	27.4	25.4	25.4	24.4	23.6
Vegetables (kg)	71.8	75.9	79.6	80.1	82.4
Fruit (kg)	82.6	80.4	88.8	84.4	82.0
Eggs (pcs)	278	272.5	280.4	272.6	277.4

► Ex-farm Price for Primary Produce (covers period from 1 January - 31 December for each year)



► Accreditations, Suspensions and Re-installations Of Pig and Poultry Farms

	Type of Farms					Total
	Pig	Chicken Broiler	Duck Broiler	Chicken Layer		
No. of new farms accredited	0	16	1	0	17	
No. of farms suspended/de-listed	3	98	6	1	108	
No. of farms re-instated	0	19	8	2	29	

► Trade Documentation and Import Inspection Figures

	Meat and Meat Products		Fish and Fish Products		Fruit and Vegetables	
No. of traders registered		2,461		816		
No. of import permits issued	18,503		173,615		217,084	
Quantity and value of produce approved for import	186,017 tonnes \$593 mil		240,716 tonnes \$1,115 mil		843,030 tonnes \$721 mil	
No. of consignments inspected	47,549		1,629		11,701	
Quantity and value of imported produce inspected	187,702 tonnes \$593 mil		4,364 tonnes \$29.6 mil		18,608 tonnes \$27 mil	
No. of consignments rejected	131		32		330	
Quantity and value of produce rejected consignments	1,816 tonnes \$4.5 mil		68.5 tonnes \$0.67 mil		268 tonnes \$0.52 mil	

► **Illegal Imports Intercepted**

	Meat and Seafood	Eggs (poultry)	Animals and Birds	CITES
No. of cases	146	86	9	40
No. prosecuted	13	1	3	7
No. compounded	48	NA	NA	18
No. warned	85	65	5	NA
Others (relevant particulars not available, no action required)	-	20	1	NA

► **Farming Activities in Singapore - FY 2001**

	Number of Farms	Net Area (hectares)
<b>Fish</b>	58	120
Aquarium fish (breeding/export)		
<b>Foodfish and Shrimps (land-based)</b>	12	42
Freshwater		
Marine	3	19
<b>Animals and Birds</b>		
Layer (hen eggs)	7	81
Duck, quail and other gamebirds	2	5
Exotic bird	4	10
Dairy cattle and goat	4	9
Frog and crocodile	3	10
Dog (breeding/boarding/training)	7	7
<b>Plants</b>		
Vegetables (including mushrooms, beansprouts, etc.)	65	121
Fruit	3	13
Orchard and ornamental plants	67	283
Aquatic plants	2	12
Fodder crop, turf and others	1	5
<b>Total</b>	<b>238*</b>	<b>737*</b>
<b>Foodfish and crustaceans (sea-based)</b>	89	57

\* Excluded sea-based farming activities

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# Financial Statements

For the financial year ended 31 March 2002

AGRI-FOOD AND VETERINARY AUTHORITY  
(Established under the Agri-Food and Veterinary Authority Act 2000)

# Two-Year Financial Summary

Agri-Food and Veterinary Authority

Income and Expenditure	FY 01/02 \$'000	FY 00/01 \$'000
Operating income	25,310	25,159
Operating expenditure	72,059	66,162
Operating deficit	(46,749)	(41,003)
Non-operating surplus/(Deficit)	49	(10,204)
Deficit before grants	(46,700)	(51,207)
Grants	46,708	51,277
Surplus before contribution in lieu of tax	8	70
Contribution in lieu of tax	(2)	0
Surplus after contribution in lieu of tax	6	70

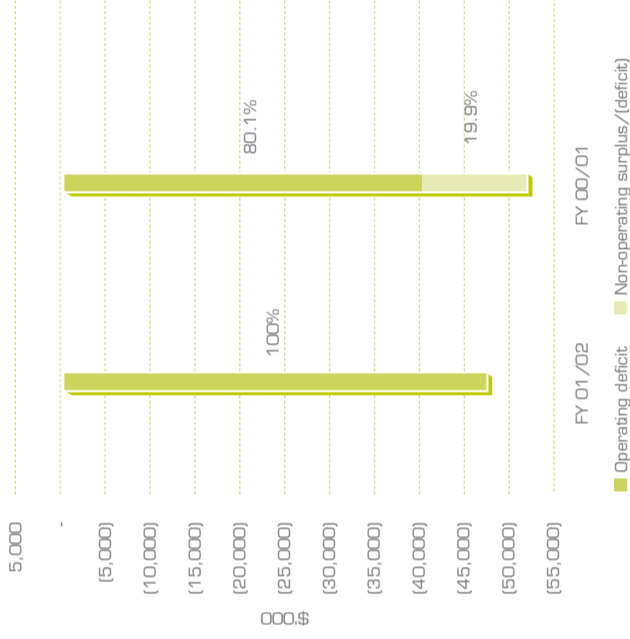
### Balance Sheet

Fixed assets	8,233	9,810
Properties and projects under development	143,036	140,924
Other non-current assets	0	0
Current assets	21,183	8,715
<b>Total assets</b>	<b>172,452</b>	<b>159,449</b>

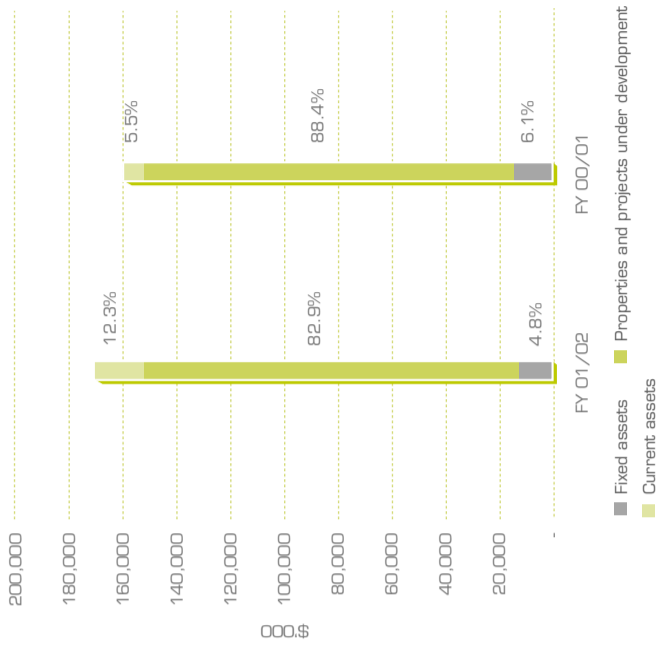
Capital and accumulated surplus	1,914	483
Deferred capital grants	151,269	150,734
Project fund	7,714	0
Current liabilities	7,261	5,547
Deferred income and provision for pensions benefits	4,294	2,685
<b>Total</b>	<b>172,452</b>	<b>159,449</b>
Capital expenditure	8,177	157,117

# Two-Year Financial Summary (Continued)

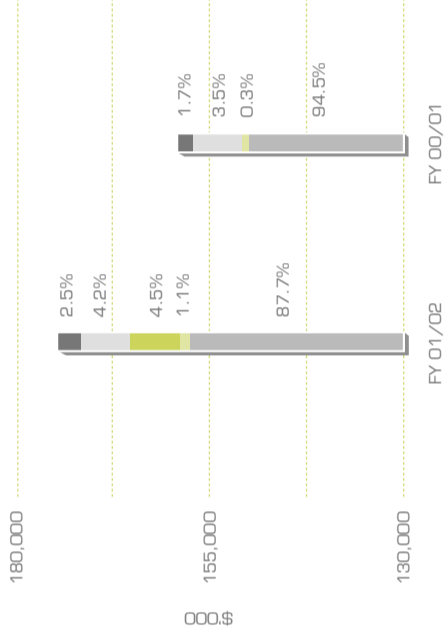
### Surplus before Contribution in Lieu of Tax



### Assets



### Capital and Liabilities



## Financial Review

### Financial Results

In its second year of operations, AVA was able to generate \$25.3m revenue of which 49.49% came from the issuance of certificates and collection of permit fees.

Operating expenditure for the year was \$72.1m, an increase of \$5.9m (8.9%) over last year's operation cost. The main contributing factor in the cost increase was higher rentals for AVA's head office and remote sites as well as increased maintenance costs for the existing remote centres and newly completed centres.

Outside of normal operations, AVA received interest income of \$58,818 in 2002 and suffered a loss on disposal of plant and equipment of \$9,855.

The net deficit before government grant for the year was \$46.7m. Grant in Aid received from Government for FY2001/2002 was \$39.1m and AVA also transferred \$7.6m from deferred capital grants to the Income and Expenditure Statement to cover the net deficit.

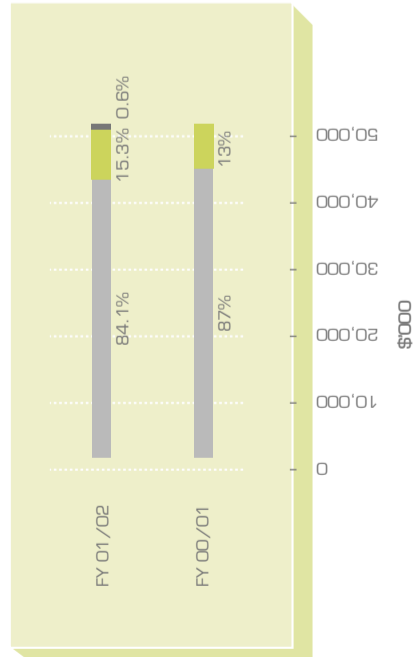
AVA's net surplus for the year was \$5,765 as compared to \$69,937 last year.

	FY 01/02 \$'000	FY 00/01 \$'000
Turnover from operations	25,310	25,159
Less:		
Purchase of goods/services	22,485	16,692
Value added from operations	2,825	8,467
Grants	46,708	51,277
Non-operating income/(Expenditure)	49	(10,204)
Interest income	59	84
(Loss)/Gain on disposal of property, plant and equipment	(10)	35
Administrative charge arising from alienation of land	0	(10,323)
<b>Total value added available for distribution</b>	<b>49,582</b>	<b>49,540</b>

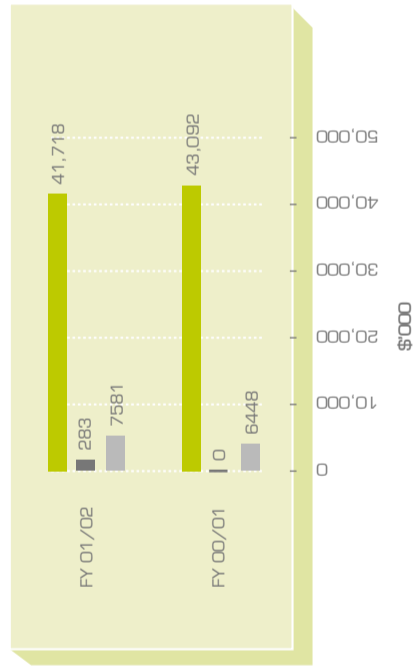
#### Distribution

To employees	41,718	43,092
Salaries and staff welfare/benefits	283	0
To Government	2	0
Contribution in lieu of tax	281	0
Property and other taxes	7,581	6,448
Retained for reinvestment and future growth	7,575	6,378
Depreciation	6	70
Surplus		
<b>Total value added</b>	<b>49,582</b>	<b>49,540</b>

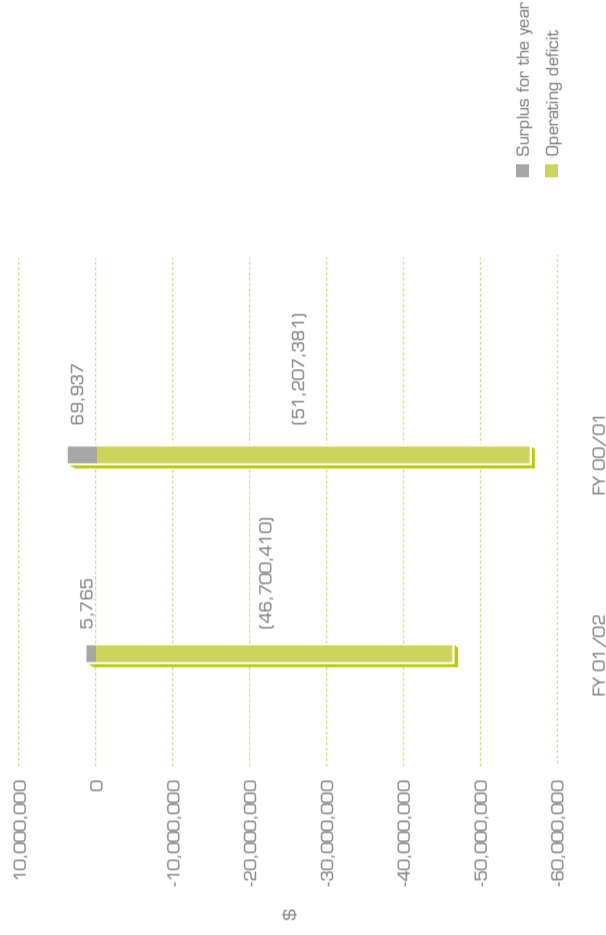
#### Total Value Added



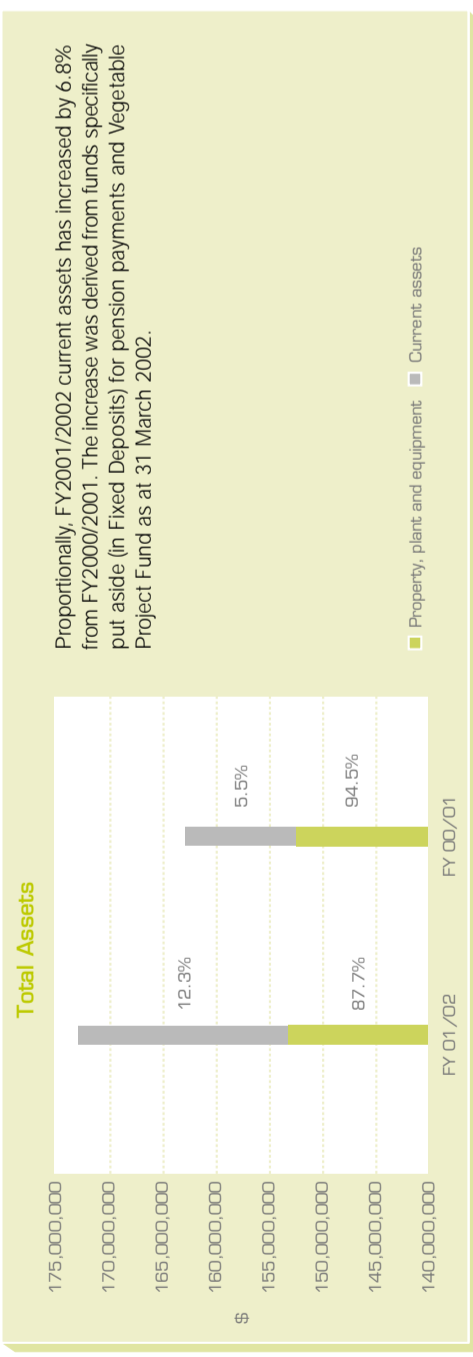
#### Distribution of Value Added



#### Results from Operations



As at 31 March 2002, AVA's total assets increased by \$13.0m to \$172.4m. Property, plant and equipment accounted for 87.7% of the total assets at \$151.3m.



### Capital, Reserves and Liabilities

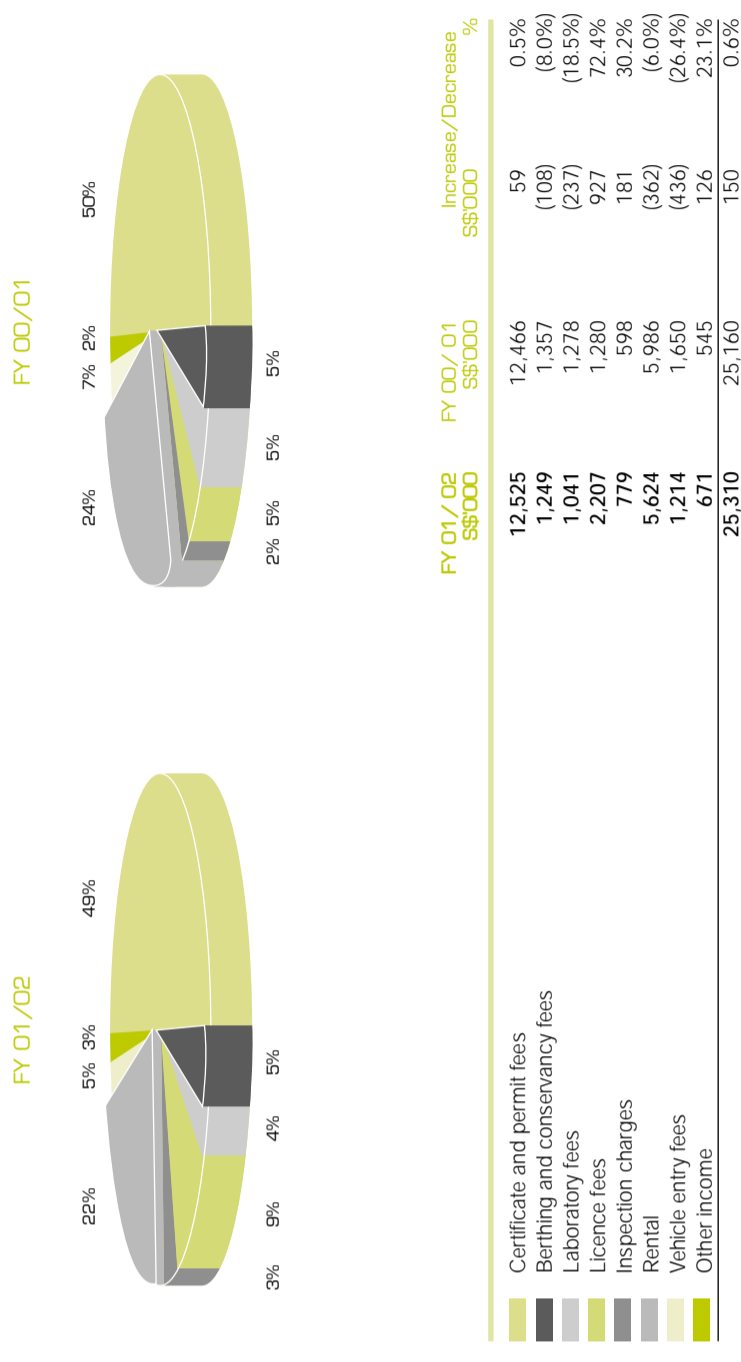
Capital, reserves and liabilities of AVA as at 31 March 2002 totalled \$172.4m (FY2000/2001: \$159.5m). For FY2001/2002, AVA had a special project fund balance of \$7.7m brought forward, while the non-current liabilities and current liabilities stood at \$4.3m and \$7.3m respectively. This represents an overall increase of 8.1% over FY2000/2001.



## Operating Income

Operating income comprised mainly certificates and permits from regulatory functions and rental income from fishing port properties and facilities. The operating income from the issuance of certificates and permits remained fairly constant, whereas rental income had decreased by 6.0% due to off-budget rental rebates given to tenants at the fishing ports from November 2001 to March 2002.

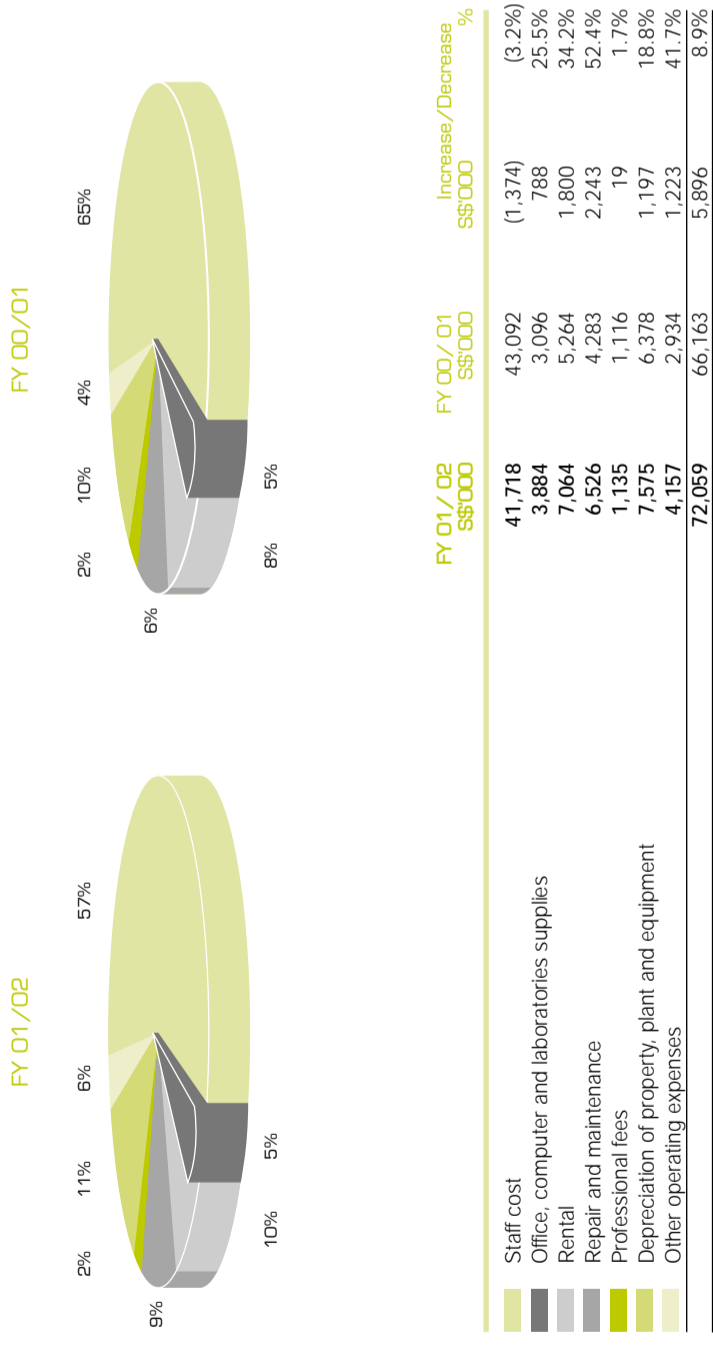
During FY2001/2002, AVA changed its accounting policy relating to the recognition of revenue. Certificate, permit and licence fees are recognised as revenue on an accrual basis. Prior to the financial year, such fees were recognised when the certificates, permits and licences were issued. The effect of the change in accounting policy was adjusted retrospectively by reducing the retained earnings while increasing the revenue earned. As a result, licence fees increased by 72.4% during the financial year. Income from inspection has increased by 30.2% due to the implementation of the pre-export inspection fee for importing pigs from Pulau Bulan, Indonesia.



## Operating Expenditure

The operating expenditure comprised mainly staff cost, rental, repair and maintenance and depreciation cost.

Rental cost increased by 34.2% due to renovation of additional floor space at MND Complex to cater for expansion arising from the statutory board conversion, increase in rental rates of office premises at MND Complex with effect from May 2001, and retrospective billing of the Temporary Occupation Licence for office premises at Jurong Animal Quarantine Station and rental at Changi Animal and Plant Quarantine from April 2000. Repair and maintenance cost recorded an increase of 52.4% mainly due to the awarding of a new maintenance contract for the Marine Aquaculture Centre at St. John's Island beginning December 2000, payment of property tax for the land at Animal and Plant Health Centre and Veterinary Public Health Centre located at Lim Chu Kang, and an increase in computer services from the new Human Resource and Payroll System, Electronic Dog Licensing System, and the Financial System configuration changes due to AVA re-organisation. Other operating expenses increased by 41.7% mainly due to the write-off of \$0.7m net GST claim on the alienation of the six properties to AVA in FY2000/2001.



## Capital Expenditure

Capital expenditure for the financial year was \$8.2m, representing a decrease of 84.8% over last year. The alienation of the six properties, which are germane to AVA's operations, was completed in FY2000/2001. These six properties are Jurong Fishing Port, Senoko Fishing Port, Veterinary Public Health Centre, Animal and Plant Health Centre, Marine Aquaculture Centre and Centre of Animal Welfare and Control.



## Auditors' Report

### TO THE AGRI-FOOD AND VETERINARY AUTHORITY

Agri-Food and Veterinary Authority

We have audited the financial statements of the Agri-Food and Veterinary Authority for the financial year ended 31 March 2002 set out on pages 75 to 91. These financial statements are the responsibility of the Authority's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Singapore Standards on Auditing. Those Standards require that we plan and perform our audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the Authority's management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion,

- the accompanying financial statements are properly drawn up in accordance with the provisions of the Agri-Food and Veterinary Authority Act 2000 ("Act") and Singapore Statements of Accounting Standard and so as to give a true and fair view of the state of affairs of the Authority at 31 March 2002, and its results, changes in fund and grant accounts and cash flows for the financial year ended on that date; and
  - the accounting and other records required by the Act to be kept by the Authority have been properly kept in accordance with the provisions of the Act, including records of all assets of the Authority whether purchased, donated or otherwise.
- During the course of our audit, nothing came to our notice that caused us to believe that the receipt, expenditure and investment of monies, and the acquisition and disposal of assets by the Authority during the financial year have not been made in accordance with the provisions of the Act.



PricewaterhouseCoopers  
Certified Public Accountants

Singapore, 31 July 2002

## Income and Expenditure Statement

### FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

	Notes	2002 \$	2001 \$
<b>OPERATING INCOME</b>			
Certificate and permit fees	20(a)	12,525,152	12,465,801
Berthing and conservancy fees	20(b)	1,248,896	1,357,143
Laboratory fees		1,040,929	1,277,641
Licence fees	20(a)	2,207,322	1,279,793
Inspection charges		778,761	598,177
Rental		5,624,025	5,985,800
Vehicle entry fees		1,214,164	1,649,666
Other income	20(a)	671,000	544,901
		<b>25,310,249</b>	<b>25,158,922</b>
<b>Less:</b>			
<b>OPERATING EXPENDITURE</b>			
Staff costs	4	41,718,262	43,091,634
General and administrative expenses	5	22,766,410	16,692,469
Depreciation of property, plant and equipment		7,574,950	6,377,807
		<b>72,059,622</b>	<b>66,161,910</b>
		<b>(46,749,373)</b>	<b>(41,002,988)</b>
<b>NON-OPERATING INCOME</b>			
Gain on disposal of property, plant and equipment		-	34,571
<b>FINANCE INCOME</b>			
Interest income		58,818	84,125
		<b>(46,690,555)</b>	<b>(40,884,292)</b>
<b>Less:</b>			
<b>NON-OPERATING EXPENDITURE</b>			
Loss on disposal of property, plant and equipment		(9,855)	-
Administrative charge arising from alienation of land		-	(10,323,089)
<b>DEFICIT BEFORE GRANTS</b>		<b>(46,700,410)</b>	<b>(51,207,381)</b>
<b>GRANTS</b>			
Operating grants	6	39,062,610	34,571,252
Transfer from Non-government grant	7	3,232	-
Transfer from Capital Grants	8	-	10,323,089
Transfer from Deferred Capital Grants	9	7,642,204	6,382,977
		<b>46,708,046</b>	<b>51,277,318</b>
		<b>7,636</b>	<b>69,937</b>
		<b>(1,871)</b>	<b>-</b>
		<b>5,765</b>	<b>69,937</b>
<b>SURPLUS BEFORE CONTRIBUTION IN LIEU OF TAX</b>			
Contribution in lieu of tax	10		
<b>NET SURPLUS FOR THE YEAR</b>			



Koh Poh Tiong  
Chairman



Dr Ngiam Tong Tau  
Chief Executive Officer


31 July 2002

## Balance Sheet

### AS AT 31 MARCH 2002

Agri-Food and Veterinary Authority

Notes	2002	2001
	\$	\$
	75,702	69,937
11	7,713,522	-
8	1,838,089	413,446
9	151,268,735	150,734,310
	<u>160,896,048</u>	<u>151,217,693</u>
12	151,268,735	150,734,310
13	2	2
	<u>151,268,737</u>	<u>150,734,312</u>
	498,052	1,350,053
	-	568,783
	352,365	586,935
14	881,730	168,872
13	49,998	49,998
15	7,550,000	50,000
15	11,850,735	5,940,028
	<u>21,182,880</u>	<u>8,714,669</u>
	<u>172,451,617</u>	<u>159,448,981</u>
	6,453,958	4,439,469
16	78,628	477,790
	1,422,421	1,348,998
17	300,536	66,917
7	196,768	200,000
	1,871	-
	<u>8,454,182</u>	<u>6,533,174</u>
17	3,101,387	1,698,114
	11,555,569	8,231,288
	<u>160,896,048</u>	<u>151,217,693</u>

  
Koh Poh Tiong  
Chairman

  
Dr Ngiam Tong Tau  
Chief Executive Officer

## Statement of Changes in Fund and Grant Accounts

### FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

Note	Accumulated Surplus	Vegetable Project Fund	Capital Grants	Deferred Capital Grants	Total
	\$	\$	\$	\$	\$
<b>Balance at 1 April 2001</b>	2,754,676	-	413,446	150,734,310	153,902,432
- as previously reported	(919,708)	-	-	-	(919,708)
- prior year adjustments:	(1,765,031)	-	-	-	(1,765,031)
Revenue recognition	69,937	-	-	-	69,937
Pension costs	-	-	413,446	150,734,310	151,217,693
- as restated	5,765	-	-	-	5,765
Recognised gain/(loss) for the year	-	(286,478)	-	-	(286,478)
- Surplus for the year	5,765	(286,478)	-	-	(280,713)
- Deficit for Vegetable Project	-	8,000,000	7,801,494	-	15,801,494
Grants received during the financial year	-	-	(6,376,851)	6,376,851	-
Capital grants utilised during the financial year	-	-	-	1,799,778	1,799,778
Transfer from operating grants	-	-	-	-	-
Grants taken to Income and Expenditure Statement	-	-	(7,642,204)	-	(7,642,204)
<b>Balance at 31 March 2002</b>	<u>75,702</u>	<u>7,713,522</u>	<u>1,838,089</u>	<u>151,268,735</u>	<u>160,896,048</u>
<b>Balance at 1 April 2000</b>					
Recognised gain for the year - Surplus for the year - restated for the effect of prior year adjustment	69,937	-	-	-	69,937
Net book value of assets transferred in upon establishment of the Authority	-	-	-	8,856,499	8,856,499
Capital grants received during the financial year	-	-	158,552,314	-	158,552,314
Capital grants utilised during the financial year	-	-	(147,815,779)	147,815,779	-
Transfer from operating grants	-	-	-	445,009	445,009
Grants taken to Income and Expenditure Statement	-	-	(10,323,089)	(6,382,977)	(16,706,066)
<b>Balance at 31 March 2000</b>	<u>69,937</u>	<u>-</u>	<u>413,446</u>	<u>150,734,310</u>	<u>151,217,693</u>

## Cash Flow Statement

### FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

Agri-Food and Veterinary Authority

Note	2002	2001
	\$	\$
<b>Cash flows from operating activities</b>	(46,700,410)	(51,207,381)
Deficit before grants		
Adjustments for:		
Depreciation of property, plant and equipment	7,574,950	6,377,807
Loss/(gain) on disposal of property, plant and equipment	9,855	(34,571)
Interest income	(58,818)	(84,125)
Provision for pension benefits	1,703,809	1,821,124
Deficit before working capital changes	(37,470,614)	(43,127,146)
Changes in working capital:		
Debtors	146,885	(1,518,925)
Creditors	2,087,912	5,788,467
Due by subsidiary	-	(49,998)
Due by government (net)	404,191	(677,928)
Payment of pension benefits	(34,831,626)	(39,585,530)
<b>Net cash outflow from operating activities</b>	(66,917)	(56,093)
	(34,898,543)	(39,641,623)
<b>Cash flows from investing activities</b>	(8,176,629)	(157,117,287)
Purchase of property, plant and equipment	57,399	39,741
Proceeds from disposal of property, plant and equipment	-	(2)
Investment in subsidiary	51,076	84,125
Interest income received	(8,068,154)	(156,993,423)
<b>Net cash outflow from investing activities</b>		
<b>Cash flows from financing activities</b>	7,713,522	-
Grants received, net of expenditure for Vegetable Project	-	200,000
Non-government grant received	48,663,882	202,425,074
Government grants received	56,377,404	202,625,074
<b>Net cash inflow from financing activities</b>		
<b>Net increase in cash and cash equivalents</b>	13,410,707	5,990,028
Cash and cash equivalents at the beginning of the financial year	5,990,028	-
<b>Cash and cash equivalents at the end of the financial year</b>	19,400,735	5,990,028
	15	

## Notes to the Financial Statements

### FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

These notes form an integral part of and should be read in conjunction with the accompanying financial statements.

#### 1. General

The Agri-Food and Veterinary Authority is a statutory board established in Singapore under the Agri-Food and Veterinary Authority Act 2000. It is domiciled in Singapore. The address of the Authority's registered office is

5 Maxwell Road  
#02/03-00 Tower Block  
MND Complex  
Singapore 069110

#### 2. Principal activities

The principal activities of the Authority are:

- to regulate the safety and wholesomeness of primary foods for supply to Singapore;
- to promote and regulate animal and fish health, animal welfare and plant health;
- to promote, facilitate and regulate the production, processing and trade of primary foods and products related to or connected with the agri-food and veterinary sectors;
- 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;
- to promote the development of the agri-food and veterinary sectors;
- to advise and make recommendations to the Government on matters, measures and regulations related to or connected with the agri-food and veterinary sectors;
- to represent the Government internationally on matters related to or connected with the agri-food and veterinary sectors; and
- to carry out such other functions as are imposed upon the Authority by or under the Agri-Food and Veterinary Authority Act 2000 or any other written law.

Effective from 1 July 2002, these activities have been expanded to include the regulation of foods up to the stage before the retail chain.

## Notes to the Financial Statements

### FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

#### 3. Significant accounting policies

##### (a) Basis of accounting

The financial statements are prepared in accordance with and comply with Singapore Statements of Accounting Standard. The financial statements are prepared under the historical cost convention and are expressed in Singapore dollars.

In 2002, the Authority adopted the following standards:

SAS 8 (Revised 2000)	Net Profit or Loss for the Period, Fundamental Errors and Changes in Accounting Policies
SAS 10 (Revised 2000)	Events after the Balance Sheet Date
SAS 17 (Revised 2000)	Employee Benefits
SAS 31	Provisions, Contingent Liabilities and Contingent Assets
SAS 32	Financial Instruments - Disclosure and Presentation
SAS 36	Impairment of Assets

##### (b) Revenue recognition

Certificate, permit and licence fees are recognised as revenue on an accrual basis.

Prior to 1 April 2001, such fees were recognised when the certificates, permits and licences were issued. The change in accounting policy was made to account for the revenue in the period to which it relates. The effects of the change in accounting policy are disclosed in Note 20(a).

Revenue from the rendering of services is recognised when the service is rendered.

Rental, vehicle entry and interest income are recognised on an accrual basis.

Other income comprises mainly fines and farm sales. Fines are accounted for when received and farm sales are recognised upon delivery of goods to customers.

## Notes to the Financial Statements

### FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

#### 3. Significant accounting policies (continued)

##### (c) 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 Income and Expenditure Statement 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 Income and Expenditure Statement 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 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.

##### (d) Foreign currencies

Transactions in foreign currencies during the financial year are recorded in Singapore dollars at the rates of exchange prevailing on the transaction dates. Foreign currency monetary assets and liabilities are translated into Singapore dollars at the rates of exchange prevailing at the balance sheet date. Exchange differences arising are taken to the Income and Expenditure Statement.

##### (e) Property, plant and equipment

All property, plant and equipment are stated at cost less accumulated depreciation. No depreciation is provided on development work-in-progress. When the carrying amount of an asset is greater than its estimated recoverable amount, it is written down immediately to its recoverable amount. Depreciation is calculated on the straight-line basis to write off the cost of all other property, plant and equipment over their estimated useful lives. The estimated useful lives are as follows:

	Years
Leasehold land and buildings	10 - 30 (over the period of the lease)
Motor vehicles and vessels	10
Equipment	8 - 10
Furniture and fittings	8
Computer systems and software	8

Assets costing less than \$2,000 each are charged to the Income and Expenditure Statement in the year of purchase.

## Notes to the Financial Statements

### FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

Agri-Food and Veterinary Authority

#### 3. Significant accounting policies (continued)

##### (f) Investments

Investments, including investments in subsidiaries, that are intended to be held for the long term are stated at cost and provision is only made in recognition of a diminution in the value of the investments which is other than temporary, determined on an individual investment basis.

Profit and losses on the disposal of investments are taken to the Income and Expenditure Statement.

##### (g) Debtors

Debtors are carried at anticipated realisable value.

Bad debts are written off and specific provisions are made for those debts considered to be doubtful.

##### (h) Cash and cash equivalents

For the purposes of the cash flow statement, cash and cash equivalents comprise cash and bank balances and fixed deposits with financial institutions.

##### (i) Provisions

Provisions are recognised when the Authority has a present legal or constructive obligation as a result of past events, 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.

##### (j) Employee benefits

###### Employee leave entitlements

Employee entitlements to annual leave are recognised when they accrue to employees. A provision is made for the estimated liability for annual leave as a result of services rendered by employees up to the balance sheet date.

Prior to 1 April 2001, such entitlements were recognised as an expense upon payment. The change in accounting policy was adopted to comply with the provisions of SAS 17 (Revised 2000).

No prior year adjustment has been made to the accumulated surplus at 31 March 2001 as a result of the change as the amount of adjustment is not reasonably determinable. The change to the Income and Expenditure Statement for the year ended 31 March 2002 as a result of the change in accounting policy is \$1,352,312.

## Notes to the Financial Statements

### FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

#### 3. Significant accounting policies (continued)

##### (f) Pension benefits

The Authority operates an unfunded defined benefit scheme for certain employees under the provisions of the Pensions Act (Chapter 225).

A provision is made for the estimated liability for pension benefits for all pensionable employees. This provision is calculated using the following information: the expected payouts to be made by the Authority under the scheme and the life expectancy of the scheme's members based on published government statistics. These amounts are discounted to and stated at their net present value.

Prior to 1 April 2001, pension costs were recognised as an expense upon payment. The change in accounting policy was adopted to comply with the provisions of SAS 17 (Revised 2000) and has been accounted for retrospectively. The effects of the change in accounting policy are disclosed in Note 20(b).

##### (k) Comparatives

Where necessary, comparative figures have been adjusted to conform with changes in presentation in the current financial year. Where applicable, the comparatives have been adjusted or extended to take into account the requirements of the revised or new Singapore Statements of Accounting Standard which the Authority implemented in 2002.

#### 4. Staff costs

	2002	2001
	\$	\$
Salaries, allowances and bonus	32,581,228	32,683,020
Central Provident Fund contributions	4,321,392	3,667,794
Other staff costs	4,815,642	6,740,820
	<u>41,718,262</u>	<u>43,091,634</u>

The number of persons employed at the end of the financial year is 730 (2001: 720).

## Notes to the Financial Statements

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

### 5. General and administrative expenses

	2002	2001
	\$	\$
Transport and travel	328,242	341,644
Office, computer and laboratory supplies	3,883,641	3,095,754
Rental	7,064,176	5,263,976
Repairs and maintenance	6,526,235	4,282,710
Auditors' remuneration		
- Current year	60,000	50,000
- Prior year underprovision	10,000	-
Entertainment expenses	-	11,603
Professional fees	1,135,011	1,116,353
Board honorarium	42,500	35,000
Goods and services tax	949,891	-
Security services	535,499	285,138
Other operating expenses	2,231,215	2,210,291
	<u>22,766,410</u>	<u>16,692,469</u>

### 6. Operating grants

	2002	2001
	\$	\$
Received during the financial year	40,862,388	35,016,261
Transfer to deferred capital grants	(1,799,778)	(445,009)
Transfer to Income and Expenditure Statement	<u>39,062,610</u>	<u>34,571,252</u>

### 7. Non-government grant received in advance

	2002	2001
	\$	\$
Balance at the beginning of the financial year	200,000	-
Received during the financial year	-	200,000
Transfer to Income and Expenditure Statement	(3,232)	-
Balance at the end of the financial year	<u>196,768</u>	<u>200,000</u>

## Notes to the Financial Statements

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

### 8. Capital grants

	2002	2001
	\$	\$
<b>Government grants</b>		
Balance at the beginning of the financial year	413,446	-
Received during the financial year	7,801,494	158,552,314
Transfer to deferred capital grants upon utilisation	(6,376,851)	(147,815,779)
Transfer to Income and Expenditure Statement *	-	(10,323,089)
Balance at the end of the financial year	<u>1,838,089</u>	<u>413,446</u>

\* The transfer to Income and Expenditure Statement in the previous financial year was for the purpose of matching against the administrative charge arising from the alienation of land to the Authority.

### 9. Deferred capital grants

	2002	2001
	\$	\$
<b>Government grants</b>		
Balance at beginning of the financial year	150,734,310	-
Net book value of plant and equipment transferred in from the Ministry of National Development ("MND") upon the establishment of the Authority	-	8,856,499
Transfer from capital grants (note 8)	6,376,851	147,815,779
Transfer from operating grants (note 6)	1,799,778	445,009
	<u>158,910,939</u>	<u>157,117,287</u>
Grants taken to Income and Expenditure Statement	(7,574,950)	(6,377,807)
- to match depreciation	(67,254)	(5,170)
- to match disposals	<u>(7,642,204)</u>	<u>(6,382,977)</u>
Balance at the end of the financial year	<u>151,268,735</u>	<u>150,734,310</u>

## Notes to the Financial Statements

### FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

#### 10. Contribution in lieu of tax

This represents the contribution payable of 24.5% in lieu of tax by the Authority pursuant to the requirements of the Ministry of Finance with effect from the financial year beginning 1 April 2001.

#### 11. Vegetable Project Fund

During the financial year, the Authority was awarded a repayable grant not exceeding \$19.9 million by the Economic Development Board ("EDB") for the transfer of up-to-date farming technology to farmers overseas to enable them to produce quality vegetables for export to Singapore. At 31 March 2002, \$8,000,000 had been received from the EDB.

The grant by the EDB is unsecured and repayable in annual instalments of \$2 million each commencing 2 January 2005. No interest is payable on the grant except that overdue payments are subject to an interest of 3% per annum above the prevailing Monetary Authority of Singapore prime rate on the overdue amount.

The Income and Expenditure Statement and Balance Sheet of the Vegetable Project Fund are set out below:

(a) Income and Expenditure Statement	2002	2001
	\$	\$
<b>OPERATING EXPENDITURE</b>		
General and administrative expenses	(320,945)	-
<b>OPERATING DEFICIT</b>	(320,945)	-
<b>FINANCE INCOME - Interest income</b>	34,467	-
<b>DEFICIT FOR THE YEAR</b>	(286,478)	-
(b) Balance Sheet		
<b>ACCUMULATED DEFICIT</b>	(286,478)	-
<b>GRANTS RECEIVED</b>	8,000,000	-
Represented by:	7,713,522	-
<b>CURRENT ASSETS</b>		
Other debtors and prepayments	5,524	-
Fixed deposits with financial institutions	5,600,000	-
Cash and bank balances	2,107,998	-
	7,713,522	-

## Notes to the Financial Statements

### FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

#### 12. Property, plant and equipment

	Leasehold land and buildings	Motor vehicles & vessels	Mechanical, electrical & micrographic equipment	Furniture and fittings	Computer systems & software	Laboratory tools & equipment	Development work-in-progress	Total
	\$	\$	\$	\$	\$	\$	\$	\$
<b>Cost</b>								
At 1 April 2001	124,481,568	3,038,960	2,100,825	2,906,283	3,854,649	16,860,531	20,839,337	174,082,153
Additions	-	304,548	146,078	237,638	183,993	796,340	6,508,032	8,176,629
Disposals	-	(265,074)	(54,947)	(487,778)	(85,912)	(817,189)	-	(1,710,900)
At 31 March 2002	124,481,568	3,078,434	2,191,956	2,656,143	3,952,730	16,839,682	27,347,369	180,547,882
<b>Accumulated depreciation</b>								
At 1 April 2001	4,396,308	1,246,017	1,625,411	2,156,590	1,774,457	12,149,060	-	23,347,843
Depreciation charge	4,396,308	441,385	158,843	347,545	988,946	1,241,923	-	7,574,950
Disposals	-	(223,485)	(50,630)	(483,028)	(85,312)	(801,191)	-	(1,643,646)
At 31 March 2002	8,792,616	1,463,917	1,733,624	2,021,107	2,678,091	12,589,792	-	29,279,147
<b>Net book value</b>								
At 31 March 2002	115,688,952	1,614,517	458,332	635,036	1,274,639	4,249,890	27,347,369	151,268,735
Net book value								
At 31 March 2001	120,085,260	1,792,943	475,414	749,693	2,080,192	4,711,471	20,839,337	150,734,310

#### 13. Investment in subsidiary

(a) The subsidiary, which is incorporated in Singapore, is as follows:

Name of company	Principal activity	Cost of investment 2002	2001	Equity holding 2002	2001
		\$	\$	%	%
Agrifood Technologies Pte Ltd (formerly known as AVA Consultants Pte Ltd)*	Dormant	2	2	100	100

\* Audited by another firm of accountants

(b) No consolidated financial statements are prepared for the Group, comprising the Authority and its subsidiary, as the subsidiary was dormant during the financial year and had no income and minimal expenditure, and its assets and liabilities at the balance sheet date were immaterial compared to those of the Authority.

# Notes to the Financial Statements

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

# Notes to the Financial Statements

FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

## 14. Other debtors and prepayments

	2002 \$	2001 \$
Prepayments	873,678	157,044
Sundry debtors	8,052	11,828
	<u>881,730</u>	<u>168,872</u>

## 15. Cash and cash equivalents

	2002 \$	2001 \$
Fixed deposits with financial institutions	7,550,000	50,000
Cash and bank balances	11,850,735	5,940,028
	<u>19,400,735</u>	<u>5,990,028</u>

## 16. Creditors and accruals

	2002 \$	2001 \$
Creditors	2,059,334	3,251,588
Accrued operating expenses	3,502,077	268,173
Deferred income	892,547	919,708
	<u>6,453,958</u>	<u>4,439,469</u>

## 17. Provision for pension benefits

	2002 \$	2001 \$
Balance at the beginning of the financial year	1,765,031	-
Provision for the financial year	1,703,809	1,821,124
Payments during the financial year	(66,917)	(56,093)
Balance at the end of the financial year	<u>3,401,923</u>	<u>1,765,031</u>

The provision for pension benefits is payable as follows:

	2002 \$	2001 \$
Within one year	300,536	66,917
After one year	3,101,387	1,698,114
	<u>3,401,923</u>	<u>1,765,031</u>

## 18. Total government grants

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

	2002 \$	2001 \$
Deferred capital grants and capital grants	175,210,307	167,408,813
Operating grants	75,878,649	35,016,261
	<u>251,088,956</u>	<u>202,425,074</u>

## 19. Commitments for expenditure

Capital expenditure contracted during the financial year but not provided for in the financial statements amounted to \$23,286,932 (2001: \$3,581,078) at the balance sheet date.

## 20. Prior year adjustments

(a) Effective from 1 April 2001, the Authority changed its accounting policy with respect to the recognition of revenue from certificates, permits and licence fees as set out in Note 3(b).

This change in accounting policy has been accounted for retrospectively and the comparatives for 2001 have been restated accordingly. The effects of the change on the balance sheet as at 31 March 2001 and the results for the financial year then ended are as follows:

	Increased/ (Decreased) \$
Revenue for the year:	
Certificate and permit fees	(24,882)
Berthing and conservancy fees	(7,068)
Licence fees	(881,941)
Other income	(5,817)
Surplus for the year	<u>(919,708)</u>
Deferred income, included in current liabilities	<u>919,708</u>

## Notes to the Financial Statements

### FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

#### 20. Prior year adjustments (continued)

- (b) Effective from 1 April 2001, the Authority changed its accounting policy with respect to pension benefits as set out in Note 3(j).

The change in accounting policy has been accounted for retrospectively and the comparatives for 2001 have been restated accordingly. The effects of the change on the balance sheet as at 31 March 2001 and the results for the financial year then ended are as follows:

	Increased/ (Decreased)	\$
Surplus for the year	(1,765,031)	
Pension liabilities, included in current and non-current liabilities	1,765,031	

#### 21. Fair value of financial instruments

The fair values of the following financial assets and financial liabilities of the Authority at the balance sheet date approximate their carrying amounts as shown in the balance sheet as at that date:

- Receivables
- Fixed deposits with financial institutions
- Cash and bank balances
- Payables
- Rental, security and other deposits

The fair value of the interest free repayable grant from the EDB for the Vegetable Project cannot be readily determined.

#### 22. Financial risk management

- (i) Foreign exchange risk

The Authority has no significant exposure to foreign exchange risk.

- (ii) Interest rate risk

The Authority's income and operating cash flows are substantially independent of changes in market interest rates. The Authority has no significant interest-bearing assets or liabilities other than investments in fixed deposits. The Authority places its surplus funds with reputable banks.

## Notes to the Financial Statements

### FOR THE FINANCIAL YEAR ENDED 31 MARCH 2002

#### 22. Financial risk management (continued)

- (iii) Credit risk

The Authority has no significant concentrations of credit risk. The Authority has policies in place to ensure that sales of products and services are made to customers with appropriate credit history.

- (iv) Liquidity risk

The Authority ensures that it maintains sufficient cash and flexibility in funding. In addition, it is financially supported by grants primarily from the government.

#### 23. Authorisation of financial statements

These financial statements were authorised for issue in accordance with a resolution of the Board on 31 July 2002.

# Notes

