



# Setting the Pace... for the good things in life.



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**Our meals, our pets, our environment – these are the good things in life that we enjoy everyday. At AVA, we work behind the scenes to ensure that these very essential elements of our lives are at their best, so that we may continue to take pleasure in them.**

**With a proactive and progressive attitude, we challenge ourselves to raise standards in maintaining a safe and steady supply of food, as well as in nurturing our flora and fauna. We also play a part in Singapore’s economic growth in terms of exports, through our continued efforts to shape our agricultural expertise and specialties.**

**We set the pace... for the good things in life.**



# BUILD UP...

efforts to enhance food safety and supply

## FOOD SAFETY & SUPPLY



A steady supply of fresh and wholesome food lays the foundation for a healthy population. With this in mind, AVA constantly builds up efforts to enhance food safety and supply. Through active participation in the food chain at every stage, we ensure a resilient food supply and that our food is safe for consumption.

Our approach towards food safety and supply is multi-faceted. We collaborate closely with other government agencies and industry players for maximum success. All processes and systems have been carefully mapped out for seamless integration – we leave nothing to chance.





## FOOD SAFETY & SUPPLY

### VARIETY AND ABUNDANCE – ENSURING CONSTANT SUPPLIES OF FOOD

As a small nation with limited agricultural output, Singapore depends heavily on imported food supplies, much of which comes from regional countries. To ensure that our nation enjoys a wide variety of food, AVA continuously works to identify new and potential food sources. Some of our efforts take the form of outbound trade missions, which not only open up opportunities for food sourcing but also foster new business relationships.

Our food diversification efforts have enabled Singaporeans to enjoy an extensive variety of food types from sources worldwide.

Apart from imports, our local farms too provide a modest supply of eggs, fish, fruit and vegetables, much of which is cultivated at our high-tech, intensive farms.

By diversifying our food sources, we hedge ourselves against sudden supply disruptions due to disease outbreaks, supply shortfalls or natural disasters. While these emergencies are beyond our control, we can better manage food supply by turning to alternative sources.

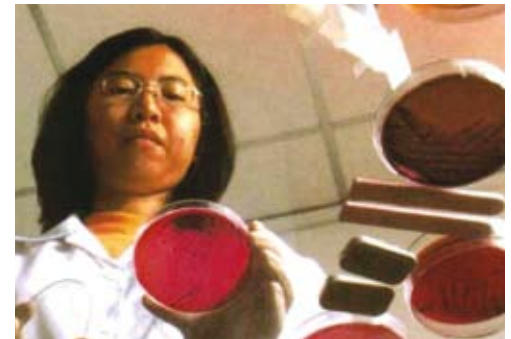
### IN THE PINK OF HEALTH – A HOLISTIC APPROACH TO FOOD SAFETY

AVA adopts a holistic system with regard to food safety, encompassing accreditation, import control, inspection and surveillance, as well as laboratory testing. Our farm-to-fork approach means that food safety is assured from the farm to the dining table. We also play a central role in implementing and enforcing government regulations on food safety.

As Singapore imports 90% of its food, accreditation of overseas sources is an effective method of regulating food safety from the point of production. AVA conducts regular accreditation visits to overseas food establishments to ensure that production practices, hygiene and food safety levels meet acceptable standards. These establishments include farms, slaughterhouses, meat and egg processing factories. Any establishment found not meeting standards is suspended or de-listed.

AVA's accreditation system is backed by a stringent inspection and laboratory testing system. All imported consignments of meat, seafood, fruit and vegetables undergo AVA's strict checks at the point-of-entry, cold store or wholesale market before they can be released for sale. Consignments that fail to meet food safety requirements are refused import, destroyed or returned to the country of origin.

AVA's food safety system also applies to imported processed food. We assess all high-risk processed food before they enter the market, while lower-risk processed food are subject to post-entry surveillance analysis and testing.





## FOOD SAFETY & SUPPLY

### COVERING ALL GROUND – A STRINGENT SURVEILLANCE AND MONITORING PROGRAMME

Apart from overseas sources, AVA also applies rigorous standards on local food supplies. All local food establishments and slaughterhouses have to be licensed by AVA. Pesticides used on farms, too, are required to be registered and approved by AVA before they may be used.

We require all local food establishments to adopt Good Manufacturing Practices or other equivalent systems of food safety, such as the Hazard Analysis and Critical Control Point (HACCP) system, before they can receive their licences. This rule covers processed food factories, and meat, fish and egg processing establishments. Inspection visits are paid to these establishments and samples are taken for laboratory testing, to ensure compliance with set standards.

A comprehensive range of monitoring and surveillance programmes are employed to detect food safety hazards in primary produce and processed food. These programmes are constantly revised or expanded to cater to new challenges and emerging food safety threats. Intensive surveillance is done on live animals, fresh food, processed food, and even food-contact items such as cutlery and food containers. Samples are taken to test for food safety hazards.

Our internationally accredited Veterinary Public Health Laboratory has a vast spectrum of capabilities to test for new and emerging food safety threats such as food poisoning and spoilage organisms, harmful chemicals, toxins, and chemical residues.

### ACTIVE INTERVENTION – PARTNERING OTHERS FOR BETTER FOOD SAFETY

AVA keeps a watchful eye on the global food safety situation for potential health threats to Singapore. Active participation in international meetings allows us to remain up-to-date in our policies and programmes, and act in the interest of our nation.

The successful management of food safety is not attributed to AVA's efforts alone. We firmly believe that food safety is a shared responsibility. By engaging the government, the industry and consumers in an integrated approach, we build the foundation for sustainable results.

Regular workshops, training courses and consultations are held to educate the industry on food safety issues such as procedures, labelling and advertisements. AVA also takes on the responsibility of educating the public on food safety issues, to raise awareness of good food safety practices among consumers. These often take the form of media campaigns, talks and exhibitions.



# STRIKE OUT...

animal and plant disease outbreaks

## ANIMAL & PLANT HEALTH



Exotic pests and diseases in animals and plants have the potential to cause great harm particularly if they become endemic. To ensure that our flora and fauna remain healthy, AVA is ever on the alert to rein in disease outbreaks even before they occur. We prevent the introduction of animal and plant diseases by upholding comprehensive monitoring, surveillance, inspection, sampling and quarantine programmes.

AVA pays particular attention to imports of animal and plant products into Singapore. We are always on the alert to protect our nation from threats such as bovine spongiform encephalopathy (mad cow disease) and highly pathogenic avian influenza (bird flu).





## ANIMAL & PLANT HEALTH

### CHECKS AND BALANCES – PREVENTING THE ENTRY AND SPREAD OF ANIMAL DISEASES

Border checks are the best preventive measure for ensuring that tainted goods do not enter the country. AVA inspects all animals, birds, fish, veterinary biologics and meat products imported into Singapore. All consignments are checked for import/export/transshipment permits, health certificates and other documentation against AVA's requirements before their release into the country. Samples are also collected from import consignments for disease monitoring.

Another important disease prevention measure is the maintenance of a high level of bio-security. AVA ensures that local poultry farms and slaughterhouses take appropriate biosecurity measures to prevent the entry of disease into their premises.

Regular inspection visits are an essential part of the programme as they contribute to the successful and early detection, treatment and containment of animal diseases. Our officers inspect local livestock farms which comprise poultry and cattle farms, as well as fish farms, to monitor the health of the animals.

We carry out an intensive animal disease surveillance programme as part of our efforts to nip animal diseases in the bud, before they pose a health hazard. Local and imported animals are tested for a wide array of harmful pathogens, such as Salmonella Enteritidis and the bird flu virus.

The tests are conducted by our Animal Health Laboratory (AHL), which is constantly improving its detection techniques for better and faster diagnoses of animal diseases. The AHL is also the national reference laboratory for the diagnosis of animal diseases and testing of animal vaccines.

### READY FOR ALL SEASONS – EMERGENCY PREPAREDNESS

In a new age where geographical boundaries have become insignificant, the likelihood of diseases spreading globally has risen. While AVA has stepped up border controls, we have also laid out emergency plans to deal with disease incursions.

In particular, we have established contingency plans for handling a possible outbreak of the bird flu in Singapore – a disease that continues to be of high concern around the world. These plans include standard operating procedures for culling of poultry based on biosegregated clusters of poultry farms, stock-piling of necessary equipment and supplies, and training exercises for the culling officers and support staff.





## ANIMAL & PLANT HEALTH

### FRIENDS FOR LIFE – PRESERVING THE HEALTH AND WELFARE OF ANIMALS

AVA takes steps to protect the health and welfare of our animal friends. Equipped with top-notch facilities, the Sembawang Animal Quarantine Station provides quarantine for imported dogs and cats to ensure that exotic diseases like rabies are not introduced into Singapore. Dogs are also licensed for the purpose of rabies control.

We conduct routine inspections and license all veterinary surgeons, veterinary centres, animal research facilities and pet shops in Singapore to ensure compliance with animal health and welfare standards. Briefings are also given to pet shop licensees to educate them on our conditions and standards, and to ensure that illegal and exotic animals are not sold.

For research facilities, AVA supervises the use of animals for scientific purposes according to national guidelines and best practices, so as to safeguard the welfare of these animals. AVA treats all instances of cruelty to animals with great gravity and we do not hesitate to take action against those found guilty of such charges.

Public education on responsible pet ownership remains a core tool for long-term animal welfare management. Through roadshows, media campaigns and school talks, AVA actively spreads the message of responsible pet ownership and animal welfare to the public. In addition, AVA works closely with various animal welfare groups to synergise our efforts to promote animal welfare.

### IN FULL BLOOM – KEEPING OUR PLANTS HEALTHY

The health and quality of our plant population are highly dependent on the absence of pests and diseases. For this reason, AVA maintains rigorous inspection and surveillance programmes of the crops and plants in Singapore, so as to keep out alien plant pests and diseases.

In preventing the entry of plant diseases and pests at our borders, AVA ensures that plant consignments are imported with the appropriate documentation and are free from plant pests and diseases before they can be sold.

AVA also conducts inspections on local vegetable, mushroom, ornamental plant and orchid farms, as well as parks and roadside trees, for pests or diseases that could threaten our crop health and greenery. Samples are collected and tested at the Plant Health Laboratory, which constantly develops new techniques for detecting and controlling pests and diseases of economic importance.

AVA works with the private sector and other government agencies to formulate common strategies towards combating plant diseases and pests to maintain a healthy garden city.

Training is a critical component in our drive towards better plant health. AVA conducts regular training sessions for pest control agencies and timber traders on safety and certification issues, as well as plant clinics for members of the public at consumer roadshows. We also, upon request, develop specific courses for the landscape and horticulture industries.



# BRING OUT...

the best from farms

## AGROTECHNOLOGY



Farming in land-scarce Singapore sounds like an improbability, yet by using intensive, high-tech methods, we have found a sustainable way to bring out the best from farms in Singapore. Agrotechnology has made possible the creation of modern farms that specialise in new generation crops, use state-of-the-art equipment and facilities, and practise good farming principles.

AVA's six Agrotechnology Parks are the main estates housing these modern and intensive farms. Covering a total land area of about 1,500 hectares, the Parks are located at Lim Chu Kang, Murai, Sungei Tengah, Mandai, Nee Soon and Loyang. Over 200 farms, including layer farms, freshwater fish farms, marine fish farms, vegetable farms, goat and cattle farms, orchid and floriculture farms, and ornamental fish farms, occupy these Parks, producing more than S\$200 million worth of produce every year.





## AGROTECHNOLOGY

### THE WAY OF THE FUTURE – INVESTING IN R&D

By investing in R&D, we ensure that we are at the forefront of technology with regard to agricultural activities.

Our R&D activities target specific areas. The Marine Aquaculture Centre (MAC) on St. John's Island spearheads technology development for tropical marine foodfish aquaculture. Its objective is to develop and improve on hatchery and fish farming technology, which is critical for developing intensive and large-scale fish farms. MAC also undertakes joint R&D projects with commercial parties and institutions that are keen on developing special projects in aquaculture.

The development of post-harvest technology is another key focus area. Our R&D projects concentrate on post-harvest handling of fish and vegetables, as well as the development of fish products with commercial value.

In the horticulture domain, R&D projects are embarked upon with commercial parties to identify quality and high yielding varieties of vegetables for local cultivation.

### SHARING THE WEALTH – TECHNOLOGY TRANSFER

By developing our expertise in new generation farming and passing on the technology and capabilities to local farms, AVA is growing the production capacity of food supply sources in Singapore.

Much effort has been devoted to transferring technology on protected cultivation, good agriculture practices, postharvest and cold chain technology for the production of quality and safe vegetables. We conduct regular visits to farms to provide consultation on crop protection, monitor farm production status, conduct farm assessments on manpower needs and introduce new varieties of vegetables. Fish farms benefit from our expertise and technologies developed at the MAC, which are passed to both local fish farms and farms in the neighbouring countries.

AVA's technology transfer efforts are not limited to food production. We also provide advisory services in the areas of horticulture and ornamental fish to farms, playing a direct role in revving up the quantity and quality of our exports. AVA supports the horticulture industry by providing services in tissue culture, seed pod germination, consultancy, field evaluation and training.

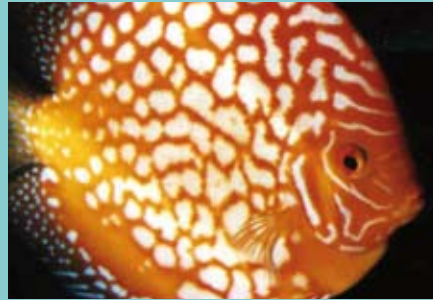
Technology transfer necessitates training and AVA organises courses to help farmers and industry players groom their skills in the relevant areas.



# FIRM UP...

ties for agricultural trade

## AGRI-TRADE



A strong global network of connections lay the ground for a diverse and resilient supply of food. AVA proactively fosters ties with partners worldwide, breaking down barriers in agricultural trade.



## AGRI-TRADE

### BRINGING A PIECE OF SINGAPORE TO THE WORLD – FACILITATING TRADE

Singapore's exports are highly dependent on the efficiency of export facilities, systems and procedures. AVA facilitates trade by establishing a methodical certification system for food and food products, plants and plant products, as well as ornamental fish. Our inspection, testing and export health certification services for the food industry are recognised in more than 40 importing countries, including Australia, New Zealand, Japan and the EU.

Whether for food, plants or ornamental fish, AVA's export health certification schemes ensure that our exports are disease-free and comply with the health requirements of importing countries.

This enables Singapore's exports to continue contributing to our economy. The ornamental fish trade is a lucrative one, bringing in some S\$100 million a year. Orchids too, have been a signature export of Singapore for many years, contributing more than \$20 million to our economy each year.

### PRESERVING WILDLIFE – PROTECTING ENDANGERED SPECIES THROUGH CITES

AVA issues Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) import, export and re-export permits for endangered wildlife and wildlife products. This is to ensure that endangered animal and plant species and their products are traded in accordance with the provisions of the Convention.

AVA also takes enforcement actions against cases of illegal wildlife import and export, and the possession of illegally imported wildlife.

### HARMONY THROUGH UNDERSTANDING – FOSTERING INTERNATIONAL COLLABORATIONS

AVA is an active participant in ASEAN Agriculture and Forestry activities, which focus on strengthening cooperation in the food, agriculture and forestry sectors for mutual benefit. We also participate in bilateral meetings and negotiations on Free Trade Agreements with major trading partners to foster closer ties and facilitate trade.

Sharing technical expertise is another ongoing commitment on the part of AVA to build capacities in food and agriculture in the ASEAN region. Through providing training in food production, food safety and disease control, we contribute to the overall strengthening of food security and enhancement of agricultural trade in the region.



## AVA HEAD OFFICE:

### Agri-Food & Veterinary Authority

5 Maxwell Road,  
#04-00, Tower Block,  
MND Complex,  
Singapore 069110  
Tel: (65) 6325 7625  
Fax: (65) 6220 6068  
[www.ava.gov.sg](http://www.ava.gov.sg)



## SERVICE CENTRES:

### Animal & Plant Health Centre

6 Perahu Road  
Singapore 718827  
Tel : (65) 6316 5168  
Fax : (65) 6316 1090

### Aquaculture Service Centre

Sembawang Research Station  
Lorong Chencharu  
Singapore 769194  
Tel : (65) 6751 9851  
Fax : (65) 6752 3242

### Centre for Animal Welfare & Control

75 Pasir Panjang Road  
Singapore 118507  
Tel : (65) 6471 9987  
Fax : (65) 6473 3687

### Changi Animal and Plant Quarantine Station

Gate C7, Airport Cargo Road  
Changi Airfreight Centre  
Changi Animal & Plant Quarantine  
Singapore 918104  
Tel : (65) 6545 7522  
Fax : (65) 6545 3023

### Horticulture Services Centre

Sembawang Research Station  
17km Sembawang Road  
Singapore 769193  
Tel : (65) 6751 9822  
Fax : (65) 6752 1244

### Jurong Fishery Port

Fishery Port Road  
Singapore 619742  
Tel : (65) 6265 0430  
Fax : (65) 6265 1683

### Marine Aquaculture Centre

St John's Island, Singapore

Mailing address:  
5 Maxwell Road,  
#01-01, Tower Block,  
MND Complex,  
Singapore 069110  
Tel : (65) 6751 9851  
Fax : (65) 6752 3242

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

2 Perahu Road  
Singapore 718915  
Tel : (65) 6790 7973  
Fax : (65) 6861 3196

### Sembawang Animal Quarantine Station

10 Lorong Chencharu  
Singapore 769197  
Tel : (65) 6482 2724  
Fax : (65) 6482 2726

### Senoko Fishery Port

31 Attap Valley Road, #02-29  
Singapore 759908  
Tel : (65) 6257 9760  
Fax : (65) 6754 8276

### Veterinary Public Health Centre

10 Perahu Road  
Singapore 718837  
Tel : (65) 6795 2822  
Fax : (65) 6861 9491

