

We Have Moved: Relocation to JEM

After more than 40 years at Maxwell Road, the Agri-Food & Veterinary Authority's (AVA) headquarters has found a new home at Jurong East Mall (JEM). We are now located at 52 Jurong Gateway Road, Singapore 608550.

AVA's Service Centre has also commenced operations at JEM on level 6, sharing premises with the Building & Construction Authority. At this brand new Service Centre, processes are streamlined and designed to enhance the customer experience.

Continued on pg 2



We welcomed our first customers, who were from Japan, at JEM on 15 December 2014.



AVA's new service centre is filled with natural sunlight, uplifting colours, and a range of features that enhance the customer experience.



Fishy Business Special Feature:
Netting Greater Support

3



Food Bites Special Feature:
Singapore's Success Stories

11



Korban Livestock:
Healthy Animals from More Sources

15



The e-Bar allows customers to complete online submissions or print watermarked documents.



Brimming with lush greenery, the “Green Wall”, adds vibrancy to the premises. Beside it, a queue display system clearly indicates the queue numbers that are currently being served or were missed.

Upon entering the spacious Service Centre, customers can either make use of self-help functions at the e-Bar, or obtain a queue number for services that are provided over the counter. They can simply scan their identity cards at the queue kiosk, and choose to register their mobile phone numbers for queue alerts via SMS. This means customers no longer need to wait in line, and can even run quick errands nearby. Those who do not mind

the short wait will get to enjoy edu-taining videos and messages on the LED display panels, or browse through our corporate publications available on the “Green Wall”.

While the Service Centre provides a host of useful features and a comfortable environment, we also encourage customers to use the e-Services on our revamped website (www.ava.gov.sg), to save time on travelling and waiting. ➡

We Had a Facelift: Revamped Website

AVA's website has undergone a complete revamp with a streamlined interface and enhanced browsing features! Starting 20 January 2015, customers will now be able to find useful information more easily and quickly. For example, tabs on the top navigation bar will allow visitors to quickly access the section relevant to their needs – be it in the area of Food, Pets & Animals, Plants, Farms, or Fisheries.

Recognising the diverse profiles of our customers, a “persona” option of browsing is also available. Customers or members of the public can simply select the persona that applies, and the suitable literature, services, tools or resources will be curated and displayed.

Lastly and most importantly, contents on our website have been improved to facilitate better understanding and ease of reading. Check out www.ava.gov.sg today! ➡





Netting Greater Support

Singapore's fish production caters to eight percent of our total fish consumption – a small fraction compared to the approximately 54,000 tonnes imported annually from 46 countries. Nevertheless, local production is crucial, as it helps to bolster the resilience of our food supply, especially in times of sudden disruptions from overseas.

This is why AVA has been helping our fish farmers improve their yields. To date, more than \$8 million of the Food Fund has been committed to fish farmers to upgrade their farm capabilities and conduct research and development (R&D) projects.

Besides providing funding assistance, AVA also provides basic infrastructure and technical assistance to help the industry raise and sustain productivity. We conduct R&D on fish farming techniques and fast-growing species. Where applicable, these findings are shared with our farmers. In addition, we support them by educating consumers on the quality of local produce and encourage them to choose local produce.

Here are the major initiatives that AVA has rolled out in the past year to cast a tighter net of support for our fish farmers.

Going All Out: Aiding Farmers during Fish Mortality Crisis

A multi-pronged approach consisting of round-the-clock technical assistance, special funding, real-time water quality monitoring, education, and R&D collaboration serves to address the current situation and long-term challenges in sustainable farming.

The Government is committed to grow the local fish farming industry and AVA is ever-ready to lend a helping hand. When our farmers along the Straits of Johor were devastated by a massive loss of fish stock in February 2014, we immediately rolled out appropriate initiatives to help them during this ordeal.

A dry spell and sudden neap tide in Singapore at the beginning of 2014 were the root causes of the sudden mass death of fishes. The adverse weather and tidal conditions led to a surge in the number of plankton ("plankton bloom") and a dip in dissolved oxygen in our seawaters. As a result, about 500 tonnes of fishes died overnight. (See infographic.)

AVA took a multi-pronged approach in helping the affected farms. Firstly, our officers provided round-the-clock technical assistance such as deployment of emergency aeration systems. Visits were made to the farms to assess the situation and farm losses were documented. In addition, fish disposal services at designated sites and farm-to-farm fish collection services were offered to ensure the water is not polluted by fish carcasses.

WHAT IS A PLANKTON BLOOM?

- Plankton (singular, plankter) are micro-organisms found in water.
- Their population can surge, or bloom, in a very short period of time and unpredictably.
- Plankton blooms are natural phenomenon.
- They can be triggered by unusual weather, elevated concentration of nutrients in the water, and poor water exchange between the high and low tides.

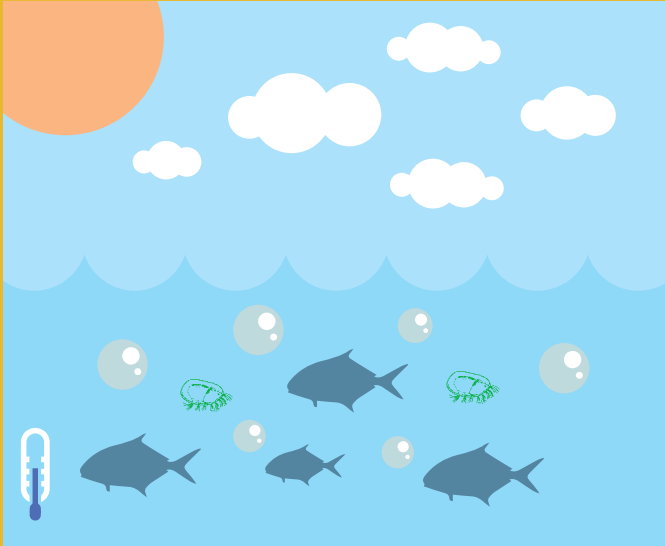
Forecasting its occurrence is very difficult. Nevertheless, measures to manage plankton bloom include:

- Routine monitoring of water quality and shellfish toxicity to estimate extent and areas affected by plankton bloom.
- High-power aeration and oxygenation of fish cages to stimulate mixing of the water and to increase the level of dissolved oxygen in the water.
- Reduction fish stocking densities in aquaculture farm cages to alleviate the need for oxygen.
- Lowering of cages and temporary suspension of feeding of fish so that the fishes are not subjected to additional stress.



Learn more about the environmental reasons that caused large numbers of fishes to die suddenly:

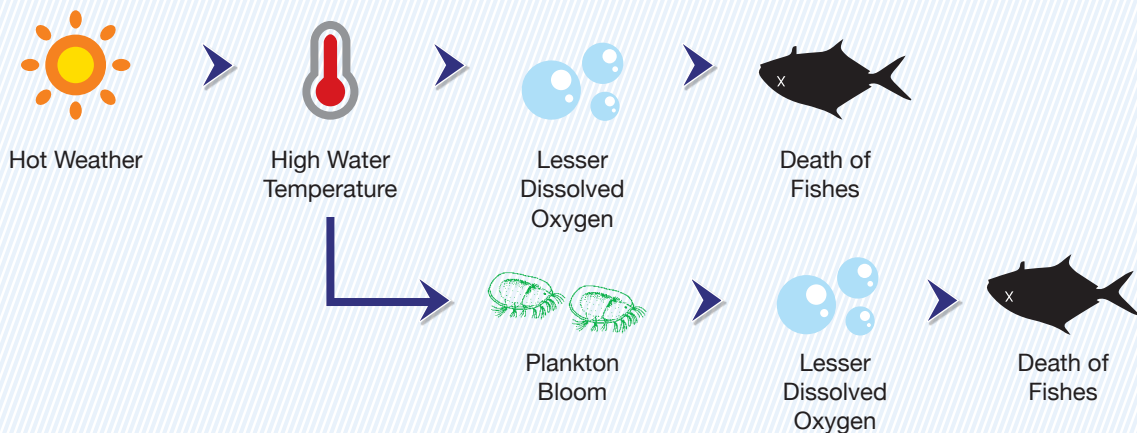
Normal Situation



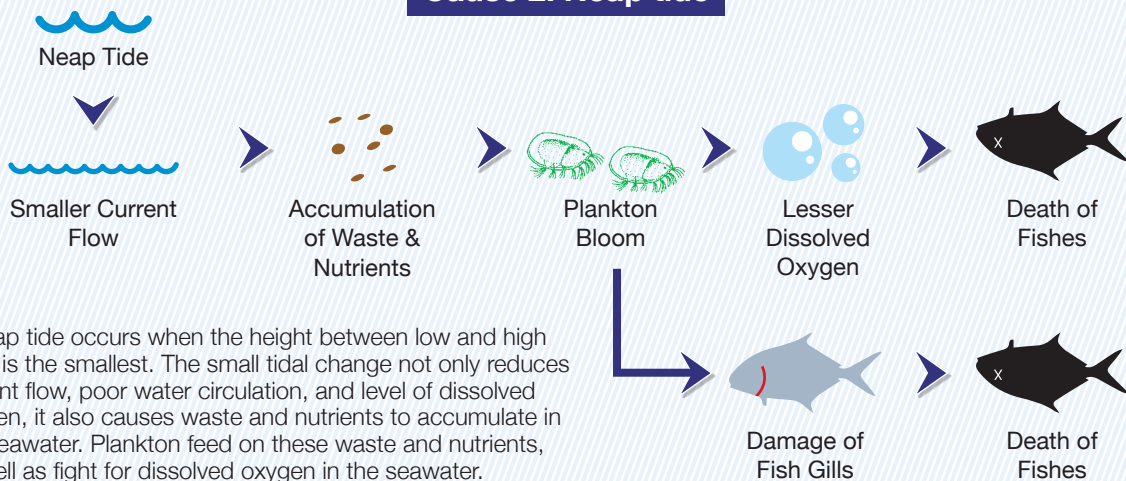
Adverse Situation



Cause 1: Persistent hot weather



Cause 2: Neap tide





From left: Ms Tan Poh Hong (AVA CEO) and Dr Mohamad Maliki Bin Osman (Minister of State for National Development & Defence) visiting coastal fish farms to better understand the concerns and needs of farmers affected by fish deaths.

CO-FUNDING OF FRY RESTOCK & EQUIPMENT

Additionally, AVA followed up with an assistance fund, as a shot in the arm for affected farmers to resume operations as quickly as possible. We have been co-funding 70 percent of the cost to restock farms with fry, and 70 percent of the purchase of equipment. We have also been providing technical advice on the possible types of mitigation equipment to be installed, such as water treatment systems, aerators, and water quality monitoring systems.

Initially, farmers had until August 2014 to take up the funding assistance. However, in responses to the requests from fish farmers to have more time to purchase fry and equipment, AVA extended the support until December 2014. Almost all of the affected farms took up AVA's funding assistance, and more than 90 percent are in the process of restocking their farms. In addition, close to 40 fish farms were successful in their applications to upgrade their farming equipment.

INSTALLATION OF WATER QUALITY MONITORING SYSTEMS

Thirdly, we stepped up our monitoring of real-time water quality around the fish farming areas as part of our routine surveillance. Continuous online water quality monitoring systems have been installed at some of the fish farms. In the event of impending poor water conditions, AVA will send alerts through mass text messages and telephone calls to farmers, so that they can take precautions early to safeguard their fish stocks. Farmers are also encouraged to notify AVA when they observe unusual fish or water conditions.



AVA officers deploying aeration systems at a fish farm.

Metropolitan Fishery Group (MFG) for example, was one of the beneficiaries. MFG received about \$570,000 for investments in solar powered aerators and water monitoring systems to enhance its operations. With the system in place, the investment paid off as the farm was not adversely affected by the mass fish deaths in February 2014.

CONTINUED EDUCATION AND COLLABORATION

Last but not least, we continued to educate our farmers on the critical effects of a plankton bloom and possible solutions to prevent losses caused by it. In a technical workshop held in May 2014, AVA invited experts from the National University of Singapore to inform farmers of the destructive impacts these micro-organisms have on aquaculture.



AVA also shared on how various types of closed containment aquaculture systems can help to isolate and protect the fishes in an event of a plankton bloom. With AVA's encouragement, farmers have shown interest in developing various forms of closed containment aquaculture systems, including the Recirculating Aquaculture System (RAS), at their farms. (Read more on the RAS on pg 08.)

The aquaculture industry can also look forward to working more closely with AVA on designing a closed containment aquaculture system. AVA has received \$1.25 million from the Co-Innovation Partnership (or CI Partnership) to develop a more sustainable sea-based farming system. The CI Partnership encourages companies to co-develop innovative solutions with the Government. We have received a total of six proposals and are in the process of evaluating them. ➡



Fish farmers at a workshop organised by AVA to help them understand more about plankton blooms and closed containment aquaculture systems.

From Fresh to Sea Water: Development of Saline-tolerant Tilapias

In addition to fast-growing freshwater tilapias, AVA's R&D may also give local farmers a viable option to grow saline-tolerant tilapias well in local seawaters.

AVA's Marine Aquaculture Centre (MAC) develops technology for the farming of tropical marine food fish. Suitable technologies and intensive farming systems are transferred to local food fish farms, so that Singapore's supply of these fishes can be enhanced. A selective breeding project involving Asian seabass and Mozambique tilapia is currently ongoing at MAC. The project develops fast-growing and good quality fish fry for intensive farming by our aquaculture industry.

The tilapia is one of the most farmed species in the world with global aquaculture production reaching 4.5 million tonnes in 2012 (FAO Fisheries and Aquaculture Statistics). Some of the

most commonly farmed tilapia species and their hybrids are cultured in freshwater ponds and lakes of many countries. Besides being fast growers, tilapias are omnivorous and can thus be fed well on plant-based diets.

However, several tilapia species do not tolerate salt water well. They exhibit slow growth and high mortality rates when reared in seawater such as ours. The Mozambique tilapia, although salt-tolerant, does not grow fast without selective breeding.

Since 2011, AVA has been collaborating with Temasek Life Sciences Laboratory Ltd to work on improving the growth rate of the Mozambique tilapia in seawater. Advanced molecular biotechnology and marker-assisted selection (MAS) technique are employed in conjunction with classical selective breeding methods to identify faster-growing and salt-tolerant strains in the Mozambique tilapia. The MAS technique in particular allows desired traits to be selected more accurately and effectively, without any genetic modification.

The growth performance of different batches of saline-tolerant tilapia in full strength seawater culture conditions was evaluated and fast growing individuals were identified and selected for development of future broodstock. Besides faster growth, the team also initiated the development of breeding lines for traits such as disease resistance and higher nutritional value of meat content. The project is targeted for completion by 2017. When successful, Singapore would have another good option of food fish to farm. Consumers will also have an added alternative to locally farmed freshwater tilapias. ➡



In MAS, tiny pieces of fin are clipped from the tilapias to look for the individuals that have inherited the variants of DNA that are associated with fast growth and salt tolerance.



Good Aquaculture Practice for Fish Farming

New certification scheme sets the benchmark for production of safe and quality fish, as well as provides added assurance to both retailers and consumers.

Besides having proper infrastructure, effective technological solutions, and government support in place, the aquaculture industry must also adopt good farming practices. The industry is not left alone to do their part. To help them up their game, the Good Aquaculture Practice for Fish Farming (GAP-FF) Certification Scheme was launched in August 2014.



AVA officers carry out audits to ascertain that the farms meet the requirements for GAP-FF certification.

The GAP-FF is a set of guidelines to help fish farms improve in key areas such as farm infrastructure management, farm husbandry, fish health management, and farm environment management. These guidelines were developed with reference to internationally recognised standards and adapted to ensure they are relevant to the local farming industry. The aim is to raise awareness of local fish farms among consumers, as well as to provide assurance to both retailers and consumers by setting the benchmark for the production of safe and quality fish. Farm audits will be carried out to ensure that farms comply with the requirements of the certification.



During a cooking demonstration held at the "Made in Singapore Fair", locally produced fishes, vegetables, and eggs are used as main ingredients.

AVA conducted a workshop in September 2014 to explain the details of the scheme to the fish farming community. For a start, farms under Barramundi Asia Pte Ltd, Rong-Yao Fisheries Pte Ltd, and Marine Life Aquaculture Pte Ltd, have been successfully certified under the scheme.

Fishes from these farms were featured in the "Made in Singapore" Fair held from 23 October to 5 November 2014. Through a series of cooking demonstrations organised by AVA during the fair, shoppers at seven FairPrice Xtra outlets learned how to whip up tasty dishes using fresh local produce as main ingredients. These recipes, specially created by chef/food consultant, Ms Violet Oon, were also distributed to shoppers. Those who purchased one locally farmed fish, along with local eggs or vegetables, redeemed an AVA cooler bag each, which carried messages on local produce. In addition, working closely with NTUC FairPrice, in-store publicity materials and newspaper advertisements were put up to heighten consumer awareness of local produce and the fair.

Rong-Yao Fisheries' Mr Alawn Koh shared: "We have incorporated the GAP Logo into our own 'SG Fish' label. The GAP Scheme helps us to maintain proper standards and procedures for aquaculture, thereby ensuring best practices. This results in increased productivity, and safe and quality fishes for supply to the local market."

Mr Frank Tan from Marine Life Aquaculture echoed Mr Koh's sentiments: "We want to cut our exposure to food safety risks by improving farm efficiency management through AVA's GAP legislation on food safety, animal and worker welfare, and environmental protection."

Barramundi Asia's Ms Eva Lim also said that the GAP-FF Scheme benefited them greatly: "When Barramundi Asia was invited to be certified under the GAP scheme, we saw it as a great opportunity for us to play a leadership

role. We could now set the benchmark for the production of safe and quality fish in Singapore. To us, the GAP logo serves a mark of quality, allowing us to stand out from other farms easily. This certification gives us the chance to show more Singaporeans that the farms here deploy excellent farming practices of global standards." ❖



Fresh from local farms: Look out for fishes bearing the GAP-FF logo in supermarkets!



Recirculating Aquaculture System: Better Farming Indoors

The highly automated indoor fish farming system promises many advantages such as protection from environmental factors and greater efficiency.

Like many industries, the aquaculture sector has many challenges to overcome. With limited space and manual labour available, our fish farmers must embrace technology and automation to increase output. Innovative technological solutions can also help prevent the loss of yield to climate change and unpredictable natural phenomenon.

RECIRCULATING AQUACULTURE SYSTEM (RAS)

One such solution is the Recirculating Aquaculture System (RAS), a type of closed containment aquaculture system for fish culture in controlled indoor environments. AVA encourages local farmers to adopt the RAS. Although initial investments are high, farms can achieve higher productivity and the following benefits in the longer term:

- **Indoor protection.** Fishes are protected against adverse environmental conditions when farmed indoors.

- **Space optimisation.** Multi-tier tanks allow for highly intensive fish stocking, thus minimising space usage in land-scarce Singapore.
- **Water resource efficiency.** Water could be re-used for fish culturing through multi-level water treatment processes.
- **Human resource efficiency.** A skid structure can be linked up with an automated system for remote monitoring of water parameters.

SUCCESSFUL OVERSEAS EXAMPLES

Several advanced farms overseas have already successfully adopted the RAS. In June 2014, representatives from MND, AVA, and our farming industry learned first-hand how the RAS is employed in aquaculture farms, during a study trip led by Minister of State (MOS) for National Development & Defence, Dr Mohamad Maliki Bin Osman, to Denmark and the Netherlands.



Seafarm B.V. founder Mr Adri Bout demonstrating his farm management software system. The programme automatically monitors all essential parameters such as water quality and function of various pumps and compressors. Alerts are sent to staff's mobile phones for immediate notification and action.

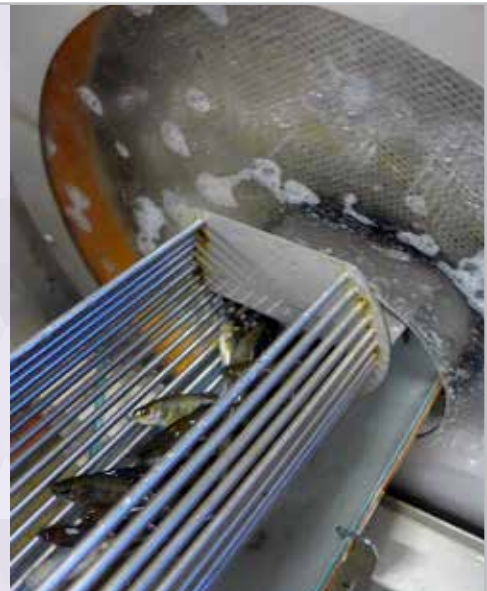
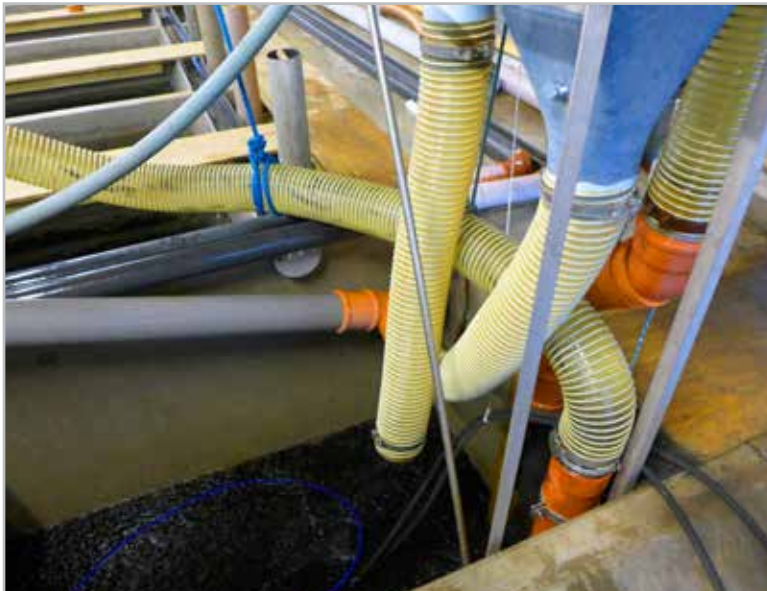


At Seafarm B.V., a turbot (flat fish) farm, all production and maintenance operations are fully automated and monitored by a centralised software system designed in-house. Only one operator is required to manage the entire facility. The farm owner also believes this prevents fishes from being unduly stressed by human handling, thus improving the quality of the fishes.

Similarly, at Lundby Fish Small Trout Farm, the RAS allows fingerlings to be moved from their tanks through a pump system, graded according to size, vaccinated, and then sorted and segregated into other tanks, entirely by machinery. ➡



Multi-layer turbot farming at Seafarm B.V. The fishes are grown in these vertically stacked tanks, and moved from here through the processing and packing chain entirely using robotics. The farm also uses machinery to clean and maintain these vertical tanks.



Fingerlings travel through the live fish transfer system to an automated grader for sorting according to size. They then pass through the mechanised vaccination bath before being transported back to their tanks.



New Jetty Provides Greater Convenience to Local Fish Farms

Located in the east side of Singapore, the Lorong Halus jetty is designed in collaboration with farmers.

To support the fish farming industry, AVA invested \$3.85 million in building a new jetty for local farmers. Located at Lorong Halus, the 3,000sqm jetty is 30 times larger than the landing site at Changi Creek. Previously, 63 of our 117 coastal fish farms – which operate in the eastern Straits of Johor – used Changi Creek and Senoko Fishery Port as landing points.

“Many fish farmers have given feedback to AVA that Changi Creek is not suitable as they have to hoist their fish and supplies over a steep sea wall to and from their vessels. In addition, a ladder is needed to embark and disembark from the vessels, and there are also no proper mooring facilities,” said Minister of State for National Development & Defence, Dr Mohamad Maliki Bin Osman, at the opening ceremony of the Lorong Halus jetty on 24 July 2014.

He further explained: “Senoko Fishery Port is likewise not ideal, as farmers will have to travel about 15km or 45 minutes from their farms to reach the port. The longer distance adds to the farms’ operational cost, although the port has facilities for mooring, loading, and unloading.”

To address these problems, AVA has since 2011 been working with fish farmers and relevant agencies to identify a new landing facility that is close to the fish farming zones in the eastern Johor Straits. Several fish farmers were involved in the design of this new jetty at Lorong Halus, including the layout and types of facilities required.

AVA also allowed fish farmers to use the new Lorong Halus jetty without any fees during the first three months of operation, so that they have ample time to make adjustments with their suppliers of farm materials or their buyers.



A concrete platform facilitates the loading and unloading of materials using a lorry crane.

FACILITIES AVAILABLE AT LORONG HALUS JETTY

- Floating jetty platform designed with consideration of the wave action and tidal conditions on site.
- Extra wide gangway that is easier for farmers to get on and off their vessels, and transfer fish and supplies to and from vessels. A maximum of 28 vessels can berth at once.
- Concrete platform to facilitate loading/unloading of heavy materials and equipment using a lorry crane. A maximum of one 24ft lorry or two 12ft lorries with mechanic crane arms to lift bulky materials to and from vessels can be accommodated.
- Refuse collection centre for farmers in the east to dispose their waste properly.
- Tap water dispenser.



From left: Dr Mohamad Maliki Bin Osman (MOS) appreciating the freshness of local fishes, with Mr Sam Choo (Rong-Yao Fisheries) and Ms Tan Poh Hong (AVA CEO).

As one of the pioneers in trying out the new jetty, Mr Frank Tan Chee Boon from Marine Life Aquaculture Pte Ltd said: “This new jetty reflects greatly on Singapore’s aquaculture industry. We first started using the jetty during the trial period, one week before the official opening. The facilities are designed to support our large-scale farming operations, and switching over has allowed us to enjoy a tremendous increase in productivity. Our travelling time was previously around 35 minutes, now it’s just 15 minutes! We also have better time management for our load-on and load-off operations now, cutting down on our labour cost by 70 percent.”

Mr Timothy Ng Keat Seng from 2 Jays Pte Ltd commented: “Since it was opened, I have utilised the Lorong Halus Jetty thrice to load heavy and bulky items, such as timber and flotation drums. I feel that the jetty has provided me with a very convenient point to load such items for my farm.” ➡



Food Security: Singapore's Success Stories

Food security, or the resilient supply of safe and nutritious food at affordable prices, is a global challenge. For Singapore, the precariousness is especially acute since almost all of our food comes from overseas.

Despite the odds, AVA has managed to sustain food security for the nation, with sound policies and effective strategies that continue to garner international recognition.

IACE: SINGAPORE'S FOOD SAFETY AND BIO-SECURITY STANDARDS ARE WORLD-CLASS

The International Advisory Committee of Experts (IACE) concluded its sixth review of AVA's food safety and bio-security programmes in August 2014. In the opinion of the IACE, AVA remains a trusted and well-respected organisation both in Singapore and internationally with food safety and bio-security standards that are of a world-class level.

Dr Gardner Murray, Chairman of the IACE, said: "The IACE recognises that there are major international challenges which pose risks to food safety, and human and animal health. These risks, including the risks of food fraud, are increasing and the AVA will have to accommodate to these new challenges. Based on past experiences, it is more than capable of doing so."

FOOD SECURITY INDEX: SINGAPORE RANKS 5TH GLOBALLY

In addition, Singapore's ranking on the Global Food Security Index (GFSI) climbed from the 16th position in 2013 to fifth in 2014. We are also the only Asian country among the top 10 nations listed.

Rank		Score/100
1	United States	89.3
2	Austria	85.5
=3	Netherlands	84.4
=3	Norway	84.4
5	Singapore	84.3
6	Switzerland	84.2
7	Ireland	84.0
=8	Canada	83.7
=8	Germany	83.7
10	France	83.4

Overall 2014 GFSI Ranking - Top 10 Countries
Source: <http://foodsecurityindex.eiu.com/Index>

The GFSI, published yearly by the Economic Intelligence Unit, covers 109 countries around the world and measures three key areas of availability, affordability, as well as quality and safety of food. The improvement in our GFSI ranking

was mostly due to (a) stability in our local production, (b) sufficiency of supply, and (c) having a nutrition plan in place.

Minister for National Development, Mr Khaw Boon Wan, wrote in his blog: "Moving up 11 notches on the GFSI for a tiny city state without much agricultural land is no mean feat. Although we import over 90 percent of our food, we support some local production to play a useful complementary role. AVA launched a \$63 million Agriculture Productivity Fund to help our local farmers boost yields and raise productivity. Our ambition is for our local farms to, over time, transform into high-tech and progressive ones." (*Read more about the Agriculture Productivity Fund on pg 12.*)

FAO: "THE WORLD CAN LEARN FROM SINGAPORE'S SUCCESS STORIES"

Some of Singapore's farms, such as Sky Greens and Sweet Chioh Fishery, have already been using technology to maximise productivity and efficient land-use.



From left: Mr Khaw Boon Wan (Minister for National Development) and Ms Tan Poh Hong (AVA CEO) receiving Mr Graziano da Silva in Singapore (FAO DG).

The Director-General (DG) of Food and Agriculture Organisation (FAO) of the United Nations, Mr Graziano da Silva, in his inaugural official visit to Singapore on 4-6 September 2014, also toured these two farms. After learning the advanced technologies used there, he commented: "The world can learn from Singapore's success stories. Singapore has made efforts particularly, to maximise productivity from very limited land resources. Commercial indoor and rooftop vegetable farms are opening and other urban and peri-urban agricultural initiatives are taking shape."

Since becoming a member of FAO in June 2013, Singapore and FAO have engaged in dialogues on opportunities for cooperation, so as to advance food safety and security for Singapore and the region. During Mr da Silva's visit, Singapore and FAO also affirmed their intent to collaborate on joint projects to boost food security and food safety in Singapore and the region, such as vertical farming in a land-scarce urban environment, and the attachment of Singapore expertise to FAO. ➡



Raising the Bar for Local Farm Productivity

New funding scheme and requirements to boost local farming and landscape sector.

In the event that food supplies from overseas become unstable, it pays to have a level of self sufficiency to tide us over the shortage. This is why local farm production is important. Moreover, farms at home also serve as a platform for productive agricultural innovations to be tested. Ornamental fish and orchid farms should not be neglected too, as Singapore's market share in these exports is significant.

The Ministry of National Development (MND), AVA, and National Parks Board (NParks) work collaboratively to help local farms and landscape nurseries to achieve greater output and sustain production. Our aim is to cultivate them into a high-tech and innovative sector that makes efficient use of land and labour resources.

AVA's Food Fund has since 2009 been supporting local farms in upgrading production capability, as well as in conducting research and develop on farming technology. We have also been providing technical advisory through our workshops and seminars on topics related to production technology and good agricultural practices.

NEW AGRICULTURE PRODUCTIVITY FUND

These various forms of assistance have bore some fruits. Notwithstanding this, as land is scarce in Singapore, there is a need to balance the different needs. Farms will need to achieve even higher productivity and use farmland more efficiently. To this end, farms can tap on the new Agriculture Productivity Fund (APF), which subsumes the existing Food Fund. The \$63 million APF consists of two parts:

- \$53 million for farm capability development to support productivity improvements in the farming sector.
- \$10 million to support farms in carrying out R&D in innovative production technologies.

NEW LICENSING CONDITIONS

Given these productivity initiatives and the need to intensify the use of limited land, farms and landscape nurseries will have to meet the following new conditions:

At least 90 percent of the land must be used for farm production or landscape nursery purposes. The remaining 10 percent may be used for ancillary purposes (e.g. dwelling houses, workers quarters, offices, and visitor centres), compared to 30 percent previously. AVA will implement this requirement through the approval of farm plans and periodic farm inspections.

AVA's farms must meet minimum production levels to qualify for new leases or lease extensions. Landscape nurseries must meet minimum productivity targets and be registered under NParks' Landscape Company Register (LCR) and Nursery Accreditation Scheme (NAS).

These minimum production levels are reasonable, as most farms should be able to meet them. The policy is applicable to all land based farms licensed by AVA and will be considered as a criteria for lease extension and for new leases.

SITE TENURE

AVA and NParks will provide greater certainty to the farmers with a sufficient payback period to recoup productivity investments.

Farms	Tenure	Conditions
New sites	10 years	• Meet minimum production criteria
Existing sites	Renew or extend for 10 years	• Sites are not required for future development. • Other prevailing criteria.

For landscape nurseries, NParks will tender sites on a 3+3+3 year tenancy basis. This stems from the nurseries' different nature of operations which require lower upfront investment on infrastructure, with a shorter payback period.



Dr Mohamad Maliki bin Osman (MOS) sharing a light-hearted moment with a reporter, when announcing the new agricultural policies.

Dr Mohamad Maliki bin Osman, Minister of State for National Development and Defence, who announced the new policies during a visit to Sky Greens farm, said: "Over the past few months, I have been visiting some of our farms to better understand their operations and concerns. These understandably focus on the cost of technology, land tenures, shortage of manpower, and business continuity. We have thus worked with AVA, NParks, Urban Redevelopment Authority and Singapore Land Authority on these new measures to address the concerns, with the overall aim of productivity improvements to benefit the farms."

To apply for the APF and for more details on the new requirements, please visit www.ava.gov.sg (under Farm > Funding Schemes section). ➡



Celebrating Food Safety Excellence & Industry Partnership

The annual Food Safety Awards Night recognises efforts by the industry and reaffirms the AVA's partnership with the private sector to raise public awareness in food safety.

Amidst a climate of continuing food threats around the world, AVA has remained vigilant in monitoring the environment and putting in place stringent food safety standards. However, the government's efforts alone are not enough. The food industry needs to work hand-in-hand with the government to make sure food they offer to consumers is safe.

Over the years, several food establishments have done well in maintaining high food safety standards and their efforts are recognised through the Food Safety Excellence Awards. Establishments that have achieved grade 'A' for two, five, 10, and 15 consecutive years under AVA's Food Factory Grading System are presented Certificates of Commendation, Bronze, Silver and Gold Awards respectively at the Food Safety Awards Night annually.

At the Food Safety Awards Night held on 4 July 2014 at Orchard Hotel, Guest-of-Honour, Minister of State for National Development and Defence, Dr Mohamad Maliki Bin Osman presented six Gold and 11 Silver Food Safety Excellence Awards. In addition, AVA Chairman, Mr Koh Soo Keong, gave out 138 Certificates of Commendation, six more than last year.

The increasing number of food establishments being honoured at the Awards Night over the years is encouraging and indicates the industry's growing commitment towards food safety, as highlighted by AVA CEO, Ms Tan Poh Hong, in her opening address: "I am heartened to see that the number of companies receiving the Food Safety Excellence Awards has increased by about 30 percent over the past five years."



Mr Koh Soo Keong (AVA Chairman), Dr Mohamad Maliki bin Osman, and Ms Tan Poh Hong (AVA CEO) with our food safety partners.

WORKING ON FOOD SAFETY PUBLIC EDUCATION

While AVA encourages the food industry to strive towards high food safety standards, consumers also have a part to play in safe food selection and preparation. AVA has been actively educating the public on food safety, and garnering support from the industry through the Food Safety Partnership Scheme.



AVA's food safety mascot, an otter named Oscar, tours several supermarkets in Singapore to promote food safety tips to consumers.

Our public education outreach programmes include Food Safety mascot tours at Cold Storage and NTUC FairPrice outlets, talks in school, as well as interactive activities onboard the Food Safety Bus sponsored by Seo Eng Joo. During these activities, informative outreach collaterals – supported by Nestle, Tai Hua Food Industries, and Singapore Food Industries – are distributed to increase consumers' awareness of food safety messages. To applaud their efforts, these food safety partners were acknowledged on stage at the Food Safety Awards Night. ♦♦



China Approves Import of Dairy Products from Singapore

Singapore among few Asian and international countries approved to export infant formula and other dairy products to China.

Following detections of melamine contamination in Chinese dairy products in 2008, authorities in China have been stepping up on the safety of milk and milk products in the country. Not only do local plants now have to adhere to strict requirements, dairy exports to China must also comply with new regulations and be registered with China Certification and Accreditation Administration (CNCA) by 1 May 2014. Products from dairy plants that are not registered with CNCA will not be allowed entry into China.

AVA worked closely with the licensed dairy exporting plants in Singapore to ensure that proper documentations are submitted to CNCA for assessment. Three inspectors from CNCA arrived in Singapore to audit four dairy plants and assess AVA's food safety control system. They found the standards and quality management of dairy products produced in Singapore to be up to expectation.



Instant formula powder by Abbott Manufacturing Singapore Pte Ltd and Wyeth Nutritionals (Singapore) Pte Ltd are now approved for export to China.



General milk products made in Singapore have met requirements of Chinese authorities and are now allowed to enter China.

As a result, a total of six dairy plants in Singapore successfully gained approval to export infant formula and general milk products to China (as of 2 September 2014).

As of 29 December 2014, Singapore and South Korea were the only two Asian countries among a list of 18 to be approved for export of infant formula to China. Among the 29 countries approved for export of general milk products to China, only Singapore, Malaysia, and South Korea were from Asia.

AVA will continue to work with the industry and CNCA to facilitate the registration and approval of other eligible plants that are keen to export dairy products to China. A complete and updated list of CNCA-registered dairy plants is available at www.cnca.gov.cn/. ♦

On our Toes against Rabies: Gearing up Emergency Preparedness

AVA conducts its first exercise to test preparedness in dealing with a rabies outbreak.

As the national authority on animal health, AVA exercises a range of strategies to ensure public health and safeguard against the introduction of animal diseases, such as rabies. Rabies is a fatal viral disease and can be spread to humans through the saliva or a bite from an infected animal. The OIE (World Organisation for Animal Health) reports 50,000 deaths from rabies a year due to exposure to infected animals.

Singapore has been free from rabies since 1953. This disease-free status is maintained mainly due to AVA's rigorous system of quarantine and health checks on imported animals. This system includes pre-export vaccinations and tests, as well as post arrival checks and quarantines.

However, the disease is endemic to the region. We must not let our guard down but remain vigilant to rein in an outbreak of rabies if it occurs. On 9 September 2014, AVA conducted its first exercise to test how prepared it is in dealing with an emergency rabies outbreak.

Code-named "Exercise Lyssa I", the table top exercise examined several aspects of AVA's operational readiness, such as feasibility of rabies control policies and operations support plans. We also tested our Alert-Recall-Mobilise System, which allows AVA to mass alert specific group of stakeholders via email, SMS, and automated calls.

In addition, AVA tested the activation and delivery of 5,000 doses of animal rabies vaccines from the OIE Regional Vaccine Bank for Rabies in Asia. The vaccines arrived in Singapore on 17 September and would serve as our local stockpile. In the event of a rabies outbreak in Singapore, an additional 345,000 doses of animal rabies vaccine from the vaccine bank are available for rapid deployment to Singapore.

The key objectives of Exercise Lyssa I were met and through the table top exercise, we were able to identify areas that needed strengthening in our rabies contingency plan. ➡



Exercise Lyssa I examined several aspects of AVA's readiness in handling an outbreak of rabies, such as feasibility of rabies control policies and operations support plans.



Successful activation and delivery of 5,000 doses of animal rabies vaccines, which would serve as our local stockpile.

On our Toes against Rabies: Combating Animal Smuggling

Strict border control helps ensure that rabies and other animal diseases are not introduced into Singapore through illegal importation.

Border control is an integral part of AVA's animal import regulation. AVA officers inspect the health status as well as import and veterinary documentations of animals upon their arrival in Singapore. Where necessary, these animals may be quarantined, for us to ascertain that they are healthy.

AVA also works closely with relevant agencies, such as Immigration & Checkpoints Authority (ICA), to safeguard Singapore from illegal imports of animals. Animals that are smuggled into Singapore are of unknown health status. In the case of dogs and cats, the foremost concern is rabies. In addition, smugglers often transport animals in harsh conditions that do not comply with AVA's guidelines.



The puppies are currently being quarantined and will be re-homed.



Photo Source: ICA

Puppies uncovered on 9 September 2014.

On 9 September 2014, ICA detected an illegal import of 13 puppies in at the Woodlands Checkpoint. These puppies were kept in black cloth bags under seats of a Singapore-registered car, as well as in the glove box. AVA's investigation showed that the puppies had been sedated and were not transported in accordance to AVA's guidelines, which require pets to be transported into Singapore in containers that comply with the International Air Transport Association standards.

A Singaporean woman was charged in court for smuggling and cruelty against these 13 puppies, and was found guilty on 5 November 2014. She was sentenced to four months and one month in jail, respectively, for these charges. Both sentences will be concurrently carried out.

The puppies are currently quarantined at AVA's Sembawang Animal Quarantine Station (SAQS) to be observed for clinical signs of infectious or contagious disease, especially rabies. After quarantine requirements are fulfilled, these puppies will be re-homed.

Our borders are our first line of defence in safeguarding Singapore's security. In view of the potential danger of introducing infectious animal diseases into Singapore, we advise the public against the smuggling of animals, animal products, meat, and meat products into Singapore. ➡

Korban Livestock: Healthy Animals from More Sources

AVA continues to ensure the health and welfare of animals for Korban rituals, while facilitating the import of 1,700 Irish sheep from Ireland for the first time.

The *Korban* is a significant religious sacrificial rite for the local Muslim community. Meat of these slaughtered animals is usually distributed to the poor and needy in the community. As the agency responsible for Singapore's resilience in food supply as well as guardian of animal health and welfare, AVA facilitates the diversification of sources of livestock for Korban, and ensures that all imported animals are free from diseases.

Previously, livestock for Korban slaughtering has always been imported solely from Australia for public health, animal health, and food safety reasons. Today, Australia remains the primary source of sheep, complemented by various alternative sources.

In 2013, AVA evaluated and approved Canada, the US, Ireland, and France to export sheep and goats to Singapore. As a result, 500 sheep from Canada were successfully shipped in for the first time for Korban rites in 2013.

In 2014, Korban rites involved a total of 3,900 sheep – 2,200 from Australia and 1,700 from Ireland. Furthermore, Japan was added to the list of approved sources in July 2014.

ENSURING HIGH STANDARDS

Only sources that meet AVA's animal health and food safety standards are permitted to export livestock to Singapore. At the point of arrival in Singapore, the animals are inspected to verify their health statuses and to ensure that standards detailed in AVA's Code of Practice (COP) for animal welfare are met.

The COP was introduced in 2012 in anticipation of Australia's Exporter Supply Chain Assurance System (ESCAS). As a regulatory framework, ESCAS requires Australian suppliers to provide assurance that exported livestock would be treated according to international standards. Singapore was approved to continue importing sheep from Australia after



An AVA officer (right) demonstrates the proper way to handle animals.

passing an independent audit. The COP also provides the basis for Singapore to consistently meet international animal welfare standards of the World Organization for Animal Health (OIE).

Similar to arrangements made in previous years, AVA inspectors were present throughout Korban slaughtering of both Australian and Irish animals to ensure standards of animal welfare and food safety were met.

AVA will continue to work with the Majlis Ugama Islam Singapura (MUIS, also known as the Islamic Religious Council of Singapore) to identify suitable alternative sources of sacrificial livestock for the annual Korban rites. We will also maintain our assurance to exporting countries through regulatory oversight of Korban slaughter operations. Training provided for our stakeholders in animal handling and welfare, disease management, as well as food safety, will also be strengthened. ➡



Sheep from Australia settling down in proper holding pens in Singapore.

AVA Wins 2 Awards as First Responder for Animal-related Feedback

With a whole-of-government approach, the award-winning first responder protocol ensures action is taken in a timely manner and improves inter-agency collaboration.

AVA, in its role as the First Responder for animal-related feedback, has received two awards for the progress made in handling such feedback. The Best Practice Award (Inter-agency Collaboration) 2014, presented by the Minister in-charge of the Civil Service, Deputy Prime Minister Teo Chee Hean, recognises the inter-agency collaboration and improvements in service provided to the public for animal related issues. In addition, AVA received the Minister's Award (Team) 2014 from the Minister for National Development, Mr Khaw Boon Wan.

AVA AS FIRST RESPONDER

In our densely populated city state, animal-related issues are often complex and multi-faceted. Many of these issues do not fall clearly under the purview of any one agency, or might involve a coordinated response by multiple agencies. The Public Service Division (PSD) introduced the 'No Wrong Door' policy in 2004, so that if an agency receives a public query that is not under its charge, it must nonetheless assist to identify the right agency to look into the issue and coordinate a response.

However, some animal-related issues fall through the public service gaps and are not under any agencies' purview at all. These cases often ended up being pushed from one agency to another. Members of the public had to navigate through various agencies when reporting animal-related issues, leading to their frustration and contributing to a negative perception of the Public Service.

With a whole-of-government approach, the award-winning First Responder Protocol (FRP) ensures action is taken in a timely manner and improves collaboration between agencies in attending to animal-related feedback from the public. AVA took on the role of first responder for animal-related feedback with effect from 1 March 2012. Under the FRP for animal-related issues, when AVA first receives a feedback, it must take on a whole-of-government approach to:

- Diagnose the problem.
- Identify potential agencies.
- Draw the required expertise across the agencies to coordinate an effective response.
- Close the loop with the feedback provider.



From left: Dr Wong Hon Mun (Group Director for Agri Establishment Regulation, AVA) receives the Best Practice Award from Mr Teo Chee Hean (Deputy Prime Minister).

WHOLE-OF-GOVERNMENT APPROACH

To support this role, an inter-agency working group was formed with representatives from AVA, National Parks Board, National Environment Agency (NEA), Singapore Police Force, Singapore Land Authority, Housing and Development Board, and PSD. The working group's primary function is to facilitate effective communication, collaboration, as well as iron out operational and policy issues among relevant agencies.

Since taking on the role as the first responder on animal-related issues, AVA has established a 24-hour hotline for the public to report any animal-related feedback. The number of related calls and emails we receive over the years has increased significantly from about 8,000 in 2011 to close to 19,000 in 2014. Upon receiving these queries and comments, AVA acts as the lead in coordinating swift and effective actions to be taken by respective agencies. We also coordinate joint replies to feedback providers. ➡



AVA officers receives the Minister's Award (Team) 2014 from Mr Khaw Boon Wan (Minister for National Development).

First Responder Protocol (FRP): Examples of Successful Resolution

Nuisance Caused by Monkeys

BEFORE FRP:

In January 2010, Mrs Singh, a resident in Bukit Panjang, encountered a monkey in her flat. She contacted her Town Council, which referred her to the National Parks Board (NParks). NParks transferred her feedback back to the Town Council. Mrs Singh eventually called the police. She said, "By this point, we were upset and told them it's like they are passing the buck. Who can help?"

NOW WITH FRP:

AVA has regularly received feedback from residents living in private apartments within the direct vicinity of the Bukit Timah Nature Reserve. They have been complaining about the nuisances caused by monkeys from the area.



An AVA officer (right) reaches out to residents on ways to avoid nuisances caused by monkeys in the area.

Apart from trapping and removing the monkeys that stray into the residential areas, AVA also worked with NEA to replace the litterbins in the area with monkey-proof ones.

As a result, the food source of monkeys within the residential areas was removed, and thus the appearance of monkeys became less frequent. The joint efforts of AVA and NEA significantly reduced the number of such feedback received from the residents of the area.

Noises Caused by Bullfrogs

In August 2013, AVA received a feedback from a resident in a landed property at Dalvey Estate. Her family had been affected by the noise caused by unknown animals during the night.

AVA inspected the location and found out that the noises were caused Banded Bullfrogs, which were found in the drains both behind the resident's property and in a neighbour's property.

Following our investigation, we worked with the Public Utilities Board and NEA to clean up the drains and surrounding vicinity. AVA also advised the neighbour to clean up their drain. These measures reduced the presence of frogs and successfully resolved the issue.



Responsible Pet Ownership: Pet Care Starts with a Caring Home

AVA and SPCA team up to spread the message that proper pet care starts at home.

AVA safeguards the welfare of animals and prevents animal cruelty. However, besides regulatory control, it is also important to raise Singaporeans' awareness of their shared responsibility towards animal welfare.

In championing animal welfare, AVA proactively works with animal welfare groups and the community to educate the public on responsible pet ownership (RPO). On 27-28 September 2014, the Society for the Prevention of Cruelty to Animals (SPCA) and AVA came together to organise an event themed "Caring for Your Pet". Held at United Square Shopping Mall in celebration of World Animal Day (4 October 2014), the event drove home the message that RPO starts at, and revolves around, the home.

At the event, AVA created a walk-through showroom, where visitors could discover first-hand the needs of pets in different parts of the house, i.e. living room, kitchen, bedroom, etc. Pet owners can thus better appreciate how their animal companions' daily lifestyles can be improved. This experiential learning was provided in addition to the educational posters and information booklets displayed.

Potential and current pet owners who had more questions on pet care also took the opportunity to speak to Animal Ambassadors and AVA officers on duty at the information booth. For those who were ready to bring home a (or another)



The walk-through showroom incorporates care tips that cater to the needs of animals in different parts of the home.

pet, a number of cats, dogs, guinea pigs, hamsters and rabbits were available for adoption. To make each successful adoption a little more special and memorable, Hill's Science Diet goody bags were provided too. 🐾



An AVA officer (right) is delighted to share information on the adoption and care of pets.

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