



AVA *vision*

In this issue:



04 Singapore's Orchids Contribute Towards Orchard Society of Great Britain's Gold Medal Win at Chelsea Flower Show 2009



06 Applauding Food Industry's Efforts at Food Safety Awards Night



10 Singapore's Ornamental Fish Industry Grows from Strength to Strength



CEO, AVA, Ms Tan Poh Hong (centre), AVA Directors and officers together with representatives from the SFMA

Dialogue Sessions Hosted for Closer Partnership between AVA and the Food Industry

To help Singaporeans continue enjoying a varied supply of safe food at affordable prices, the Agri-Food and Veterinary Authority (AVA) initiated a series of dialogue sessions with the food industry for closer partnership and collaboration, since June 2009.

Chaired by CEO, AVA, Ms Tan Poh Hong, the sessions aimed at sharing AVA's plans in further enhancing Singapore's policies and regulations on food safety and supply, tapping on the industry players' professional views and experience to improve AVA's processes, and seeking opportunities for collaboration in areas of mutual interest to further enhance Singapore's resilient supply of safe food.

The dialogue sessions with the Singapore Food Manufacturers' Association (SFMA), the Singapore Manufacturers' Federation (Food & Beverages Industry Group) (SMA) and the Meat Traders' Association Singapore (MTA) were among the first of the sessions held. Conducted on 22 June, 9 July and 31 July 2009 respectively, the sessions provided an excellent communication platform between AVA and the food industry groups and association.

The SFMA and SMA play a key role in developing and promoting the local food manufacturing industry. Involved in the import, sale and manufacture of meat and meat products, MTA

continued on page 2

Corporate Cuts

continued from cover story

works closely with the regulatory bodies in Singapore. Apart from holding regular meetings to update members on issues related to the food industry, they also promote business networking opportunities by organising meetings with visiting foreign delegations, and promote trade and business information to both local and foreign business communities.

Active exchanges of views and suggestions were seen during the three sessions. As a follow-up to the sessions, two AVA-SFMA joint task forces were formed to review food export certification requirements, and discuss SFMA's proposal to promote locally manufactured food to consumers.

Other initiatives mooted include organising seminars for food factories that had consistently achieved "A" grading to share their experience with other factories as well as the formation of an Advisory Committee on the evaluation of health claims, comprising experts from relevant scientific disciplines, to study the application of the Codex's recommendations in Singapore's context. Both AVA and MTA have also agreed to review the sampling plans for imported meat.

Through these sessions, AVA has received insights to the industry's experience and knowledge of the global food business and identified potential areas of collaboration.



Chaired by CEO, Ms Tan, the dialogue sessions held with SMA (top) and MTA (bottom) aimed at strengthening ties and exploring opportunities for collaboration

AVA Receives Plaque of Commendation for Outstanding Labour Movement Contributions

Then-CEO, Agri-Food and Veterinary Authority (AVA), Dr Chua Sin Bin received the prestigious Plaque of Commendation from the National Trades Union Congress (NTUC) Secretary-General, Mr Lim Swee Say on 29 April 2009 at the Orchid Country Club.

Nominated by the Amalgamated Union of Statutory Board Employees (AUSBE) and conferred by NTUC, this award is a testament of AVA's significant contributions to the labour movement.

Fostering Good Industrial Relations through Close Partnership

Since its establishment in 2000, AVA has been working closely with AUSBE, better known as the Union, in building a strong and dedicated workforce.

In promoting good industrial relations, AVA consults the Union on changes and issues affecting members, facilitates the development of the labour movement, and organises tea sessions and union-management gatherings. AVA is also actively involved in promoting union membership at union road shows and provides financial support to the Union.

Corporate Cuts

AVA Welcomes New Board Members

The Agri-Food and Veterinary Authority (AVA) welcomed two new members – Professor Satkunanantham Kandiah and Mr Chong Lit Cheong – to its Board on 1 April 2009. Our new members bring with them a wealth of knowledge, expertise and experience in the area of healthcare and international trade respectively. AVA looks

forward to their valuable contribution and advice in safeguarding our public, animal and plant health against contemporary and emerging diseases of public health importance and in developing food and agricultural-related businesses both locally and around the region to enhance our food security and safety.

Agri-Food and Veterinary Authority Board Members

Chairman	Members	
Mr Koh Soo Keong Managing Director EcoSave Pte Ltd	Mr Frankie Chia Managing Partner BDO Partners	Mr Tan Kian Chew Group Chief Executive Officer NTUC Fairprice Co-operative Ltd
	Dr Ngiam Tong Tau Executive Vice President United Engineers Limited	Mr Cavinder Bull Director Drew & Napier LLC
	Mr Alan Lee Managing Partner August Consulting Pte Ltd	BG (Dr) Benjamin Seet Chief of Medical Corps Ministry of Defence
	Assoc Prof Zhou Weibiao Director, Food Science & Technology Programme National University of Singapore <i>[One-year sabbatical leave wef 29 May 2009]</i>	Dr Lee Tung Jean Director, Special Duties Ministry of the Environment and Water Resources
	Mr Huang Hong Peng Deputy Chief Executive Officer, Food & Beverage Fraser & Neave (S) Pte Ltd	Prof Satkunanantham s/o Kandiah wef 1 April 2009 Director of Medical Services Ministry of Health
	Mr Chong Lit Cheong wef 1 April 2009 Chief Executive Officer International Enterprise Singapore	Ms Tan Poh Hong wef 21 May 2009 Chief Executive Officer Agri-Food and Veterinary Authority

Workers' Welfare – High on AVA's Agenda

Workers' welfare ranks high on AVA's priority list. This is evident from the welfare scheme and benefits made available to its staff. Some of these welfare perks include:

- staff flexi-benefit scheme quantum of \$400 (an increase of close to 27% from the previous \$315 quantum)
- basic insurance coverage for every permanent officer under the Group Term Life Insurance Scheme
- re-employment of older workers
- 100 training hours allocated for each officer yearly and the flexibility to pursue courses outside their usual job scope

Honoured to receive this esteemed award, AVA will strive to maintain its good industrial relations and workers' welfare.



AVA's then-CEO, Dr Chua Sin Bin receiving the Plaque of Commendation from Mr Lim Swee Say, Secretary-General, NTUC

Corporate Cuts

AVA Bids Farewell to Dr Chua Sin Bin and Welcomes Ms Tan Poh Hong as New CEO



On 20 May 2009, the Agri-Food and Veterinary Authority (AVA) bade farewell to its Chief Executive Officer (CEO), Dr Chua Sin Bin, who was retiring after 38 years of dedicated service.

Dr Chua started his career as a Senior Primary Production Officer (Veterinary) in the then Primary Production Department (PPD) in 1971, and moved up the ranks to become the Deputy Director of Primary Production in 1995. Following the restructuring of PPD into AVA, a statutory board, in 2000, Dr Chua assumed dual positions of AVA's Deputy CEO and Director of Food & Veterinary Administration. On 10 August 2005, Dr Chua became AVA's CEO following the retirement of his predecessor, Dr Ngiam Tong Tau.

Besides being instrumental in establishing a world-class food safety system for Singapore, AVA's reputation as a credible and internationally-recognised authority on food safety, animal and plant health was reinforced and strengthened under Dr Chua's leadership. Both AVA and the food industry have benefited immensely from his sound guidance and depth of expertise, particularly in the field of food safety. For his distinguished service, Dr Chua was awarded the Public Administration Medal (Gold) in 2004, and conferred as a Fellow of the Singapore Institute of Food Science and Technology in 2005. AVA will continue to tap on Dr Chua's experience and standing in the international arena in his new role as Consultant to AVA.

Dr Chua is succeeded by Ms Tan Poh Hong, former Deputy CEO (Estates & Corporate) of the Housing and Development Board, with effect from 21 May 2009. Ms Tan, currently a board member of the Singapore Corporation of Rehabilitative Enterprise, has also been appointed as a member of the AVA Board.

AVA is poised to enter a new and exciting phase of growth and development under Ms Tan's leadership. With her wealth of experience in management and organisational excellence, Ms Tan would bring new organisational insight and perspective to AVA, and raise AVA to greater heights.



Singapore's very own orchids *Renanthera*, *Aranda*, *Mokara*, *Vanda* and *Dendrobium*, helped to garner the Gold Medal for the display by the Orchid Society of Great Britain

Singapore's Orchids Contribute Towards Orchid Society of Great Britain's Gold Medal Win at Chelsea Flower Show 2009

Organised by the Royal Horticultural Society, the Chelsea Flower Show is the largest, oldest, and most renowned flower show in the world. The display of the Orchid Society of Great Britain (OSGB) which featured Singapore's orchids, garnered the prestigious and coveted Gold Medal of Great Pavillion Award of the Royal Horticultural Society at the Chelsea Flower Show 2009 held from 19 to 23 May 2009 in Chelsea, London.

Toh Orchids, Singapore's homegrown international commercial orchid grower was appointed by OSGB to supply the orchids for their competitive display. The Agri-Food & Veterinary Authority of Singapore (AVA) facilitated the export and ensured that the phytosanitary certificates met the complex European Union regulations.

The OSGB landscape display spotted a river flowing through a cave under a moss-covered hill. The river emerged to cascade down waterfalls into a lake with a central island that featured a three-metre high tree festooned with orchids – all flown in by Toh Orchids. Singapore's very own orchids *Renanthera*, *Aranda*, *Mokara*, *Vanda* and *Dendrobium*, were featured and these also covered the sides of the hill and entrance to the cave. The breath-taking display offered a unique visual experience to the thousands of visitors who came to admire the display.

The win is a triumph for Singapore's orchids and a boost to our local ornamental orchid industry's reputation in delivering professional and reliable services.

Food Bites

3rd Indonesian Vegetable and Fruit Fair-cum-Business Seminar Catalyses Export of Indonesian Produce to Singapore



The Fair was officially opened by CEO, AVA, Ms Tan Poh Hong and the Indonesian Ambassador to Singapore HE Bapak Wardana



Ambassador Wardana and Ms Tan viewing the exhibits

Riding on the success of the previous Indonesian fair held in November 2007, the Agri-Food and Veterinary Authority (AVA) and the Embassy of the Republic of Indonesia jointly organised the 3rd Indonesian Vegetable and Fruit Fair 2009 at the Concorde Hotel Singapore from 27 to 28 May 2009. With support from the Singapore Fruits and Vegetable Importers and Exporters Association (SFVIEA), close to 250 participants attended this event.

The Fair was officially opened by CEO, AVA, Ms Tan Poh Hong and the Indonesian Ambassador to Singapore, HE Bapak Wardana. In her opening address, Ms Tan reiterated that AVA would continue to organise trade missions, fairs and seminars to generate interest for Indonesian produce amongst local importers and buyers, and catalyse the development of fruits and vegetables export trade to Singapore. HE Bapak Wardana in his opening speech noted that Indonesia's supply share to Singapore has increased to 6.1% in 2007 as compared to the preceding year and expressed interest to further increase Indonesia's fruits and vegetables supply to Singapore.

Indonesia's Best Range of Quality Produce Showcased at Fair

Showcasing the best range of quality fresh fruits and vegetable produce from Indonesia, 16 exhibitors from the various Indonesian provinces of West, East, Central Java and North Sumatra, as well as the Indonesian agriculture departments (DINAS) from West, East, Central Java Riau and Kepri, participated in the Fair. Five local companies comprising seeds and agricultural equipment suppliers and a refrigeration system provider were also present at the event.

The Fair provided invaluable business networking opportunity for farmers, producers and exporters from Indonesia to connect with major commercial institutional buyers from hotels, restaurants, supermarkets, wholesalers, importers and other related establishments from Singapore. Exporters received orders as well as opportunities to collaborate on producing

vegetables for the Singapore market. Key business deals were also clinched for orders of capsicum, mushrooms, spinach, *naibai*, muskmelon and a range of leafy and fruited vegetables with supermarkets and the wholesalers/importers of Pasir Panjang Wholesale Market.

Local buyers including hotel chefs, food caterers, food manufacturers and a Japanese supermarket expressed keen interest in purchasing the Indonesian produce. The cold chain systems and force-air cooling and refrigeration system, seeds and other machineries from the Singapore companies also generated much interest amongst the participants.

Business Seminar Strengthens Ties

A key event during the Fair was a business seminar, which aimed to further facilitate trade through the sharing of knowledge, information and expectations with Singapore businessmen, the Indonesia vegetable suppliers, and other stakeholders including Government agencies.

The keynote speaker, Director General of Indonesian Agency for Agriculture Research and Development, Dr Gatot Irianto, together with seven other distinguished speakers presented papers on the challenges and opportunities, finance and free trade zone support in Indonesia, Singapore's import regulations and consumer requirements, good post harvest practices and cold chain logistics, as well as safe vegetable production. The audience participated actively in the discussions and suggestions such as the formation of cooperatives and contract farming in Indonesia to improve exports to Singapore were raised.

The Fair and business seminar has built upon the linkages established previously and provided a networking platform for both Indonesian and Singapore counterparts. Following the suggestions from the participants and exhibitors, AVA will continue to work closely with the Indonesian Embassy and the agriculture offices of the various targeted provinces to catalyse the export of a greater variety and quantity of vegetable produce for the local consumers.

Applauding Food Industry's Efforts at Food Safety Awards Night



The Agri-Food and Veterinary Authority's (AVA's) industry event of the year, the Food Safety Awards Night, was held on 31 July 2009 at the Orchard Hotel Singapore. This annual event honours AVA's Food Safety Partners for their efforts in implementing food safety assurance and education programmes. Food manufacturers and importers who have consistently maintained high standards of food safety were also recognised during the night. Guest of Honour, Minister for National Development, Mr Mah Bow Tan presented seven Silver Awards, 14 Bronze Awards and 64 Certificates of Commendation to recipients during the award ceremony.

Introduced in 2003, the Food Safety Partner Scheme encourages the food industry to maintain high food safety standards and educates the public on food safety. During the night, AVA renewed partnerships with Chop Hup Chong Food Industries, Cold Storage Singapore (1983) Pte Ltd, Golden Glory Food Industries, KSB Distributions, NTUC FairPrice Co-operative Ltd, Seo Eng Joo Frozen Food Pte Ltd, Tai Hua Food Industries Pte Ltd and Thong Siek Food Industry Pte Ltd and accorded Wyeth Nutritionals (Singapore) Pte Ltd, the Food Safety Partner status.



Maintaining a Resilient Food Supply

At the event, Minister Mah addressed the longer-term strategies to enhance Singapore's food supply resilience and unveiled recommendations from an Inter-agency Committee tasked to look into the issue. A key strategy was to continue strengthening food source diversification, and to go beyond simply scouting for more sources to "creating" more sources. As a supplementary measure, he announced that the Government would also encourage local companies to explore contract farming in overseas food zones, with support from a new Food Diversification Fund. Closer to home, more land would be set aside for growing key food items such as eggs and vegetables, as local farming could serve as a useful national strategic stockpile. The committee also recommended the need to maintain links with non-traditional food sources, and to improve business continuity plans among members of the food industry in Singapore.



top: Chairman, AVA, Mr Koh Soo Keong, Minister for National Development, Mr Mah Bow Tan, CEO, AVA, Ms Tan Poh Hong (centre, L to R) with AVA's Food Safety Partners

centre: Minister Mah presenting award to AVA's new Food Safety Partner, Wyeth Nutritionals (Singapore) Pte Ltd

bottom: Dancers from Perkumpulan Seni

Reaching Out to Consumers

AVA recognises that ensuring food safety is the shared responsibility of the government, the food industry and the consumers. Themed "Together, Let's Keep Food Safe", this year's public education programme will keep consumers abreast of food safety risks and good food safety practices in handling and preparing food. Most cases of food poisoning occur when food is not handled correctly. Everyone can play a part in ensuring food safety by observing simple food safety practices in their daily living.

To raise awareness on the importance of food safety, AVA will continue to conduct assembly talks at schools and communicate the key messages in the heartlands through mascot tours at supermarkets and exhibitions and quizzes at the libraries.



The Chinese Orchestra from Singapore Polytechnic



Some of the night's proud recipients



Together, Let's Keep food Safe

We need to learn safe food habits to prevent or reduce the growth of germs in our food. Here are 5 key steps to ensuring food safety:

1. Carefully Select the Food You Buy

- Buy from established shops
- Choose food that has not passed its expiry date
- Avoid damaged canned food
- Avoid food packets that are torn or leaking

2. Wash and Keep Clean

- Wash your hands before and after handling food
- Wash and soak fruit and vegetables before eating
- Wash your hands after touching pets and animals
- If you spill food, wipe and clean up immediately

3. Separate Raw Food from Cooked Food

- Keep raw food and cooked food in different bags
- Wash knives and cutting boards between use, especially when working with raw and cooked food. It is good to use different cutting boards for raw and cooked food
- Use different plates for raw and cooked food
- Keep raw food tightly wrapped in plastic bags or in covered containers (example, a plastic bowl with a cover) in the refrigerator

4. Cook Your Food Well

- Cook food at high temperatures
- Cook food thoroughly, especially meat, eggs and seafood
- Make sure that the center of the meat is completely cooked to kill any bacteria
- Bring food like stews and soups to boiling temperature when cooking

5. Keep Food at a Safe Temperature

- Do not leave cooked food at room temperature for more than 2 hours
- Keep cold food in the refrigerator or on ice until it is time to be eaten
- When you reheat cooked food ensure that it is heated at a high temperature or brought to a boil
- Do not thaw frozen meat and seafood at room temperature. Thaw them in the chiller compartment of the refrigerator or use the microwave

Food Bites



Dr Paul Chiew, Prof Amadeo Rodríguez Fernández-Alba, Ms Tan Poh Hong, HE Holger Standertskjold-Nordenstam, Dr Chew Siang Thai, Dr Michelangelo Anastassiades, Dr Carmen Ferrer (Front row: L to R) with participating scientists at the 3rd EC-ASEAN Training on Pesticide Residues Analysis

The Agri-Food and Veterinary Authority's (AVA's) Veterinary Public Health Laboratory (VPHL) conducted the 3rd run of regional training for ASEAN pesticide residue scientists from 13 to 17 July 2009.

Funded by the EU under the "EC-ASEAN Economic Co-operation Program on Standards, Quality and Conformity Assessment" project, this course was officially opened by CEO, AVA, Ms Tan Poh Hong and graced by Head of Delegation of the European Commission to Singapore, HE Holger Standertskjold.

A total of 17 scientists from 9 ASEAN countries were under the tutelage of three EU residue expert trainers, namely, Professor Amadeo R and Ms Carmen Ferrer from the EU Community Reference Laboratory for Fruits & Vegetables, Spain, and Dr Michelangelo Anastassiades from the EU Community Reference Laboratory for single residue methods for Fruits & Vegetables, Germany during the 5-day course.

The training included an overview on pesticide residue analysis, EU regulations on pesticide residues for food imports, quality control procedures, laboratory management, ISO standard on the competency of testing laboratory and participation in international proficiency tests. Participants gained knowledge on how to access EU databases on pesticide residue analysis and exchange technical information between laboratories on method validation data. During the practical sessions, they had first-hand experiences with the latest extraction methods used in advanced pesticide residue laboratories.

The training course provided an excellent platform for ASEAN scientists to work together and exchange information on strategic issues in food analysis. All the participants have benefited and enhanced their testing capabilities in pesticide residue analysis.

ASEAN Pesticide Residue Scientists Congregate for Training at VPHL

VPHL, a Regional Training Hub for Pesticide Residue Analysis

Designated as the National Reference Center for pesticide residue analysis in food in 1992, the VPHL became the ASEAN Reference Laboratory (ARL) for pesticide residue analysis in food in 2004. The organisation of this regional training course is yet another milestone to elevate VPHL's status as a regional training hub and information center for pesticide residue analysis. With its excellent facilities and resources in food testing capability, VPHL will continue to act as a focal point for analytical testing collaboration and sharing technical expertise for the benefit of our ASEAN counterparts.

AVA Shares with Cixi Delegation on Management of Agrotechnology Parks

A Singapore-based company's interest to develop an eco-agriculture development in Cixi and replicate the Agri-Food and Veterinary Authority's (AVA's) development and management of its Agrotechnology Parks for sustainable agriculture production led to the visit of a 11-member delegation from Cixi City, Ningbo Municipality of Zhejiang Province, People Republic of China in May 2009. Hosted by AVA and the International Enterprise Singapore, this delegation together with its Party Secretary, Mr Hong Jiexiang, visited the Agrotechnology Parks on 17 May 2009 to better understand the concept planning and management of these parks. Visits were also made to an aeroponic farm, an ornamental fish farm and an orchid farm. The trip concluded with a tour of AVA's Veterinary Public Health Laboratory and a courtesy call on AVA on 18 May 2009.

Food Bites

Pre-Cooling Technology Extends Shelf Life and Improves Sales Turnover



AVA officer explaining the benefits of pre-cooling technology to participants

Pre-cooling is the first step in good temperature management of vegetables. It is important to pre-cool vegetables before packing and sending them to the market as rapid cooling after harvest will prolong the shelf life of freshly harvested produce.

Most vegetable farmers use room cooling, which usually takes between 4 to 20 hours. This duration is too long for farmers with a high quantity of harvest. Furthermore, the cooling capacity is insufficient to cool all the harvested vegetables at a single time, hence delaying the packing process. As such, farmers were introduced to vacuum and forced-air cooling, which are faster methods for pre-cooling vegetables.

Vacuum Cooler Technology

The vacuum cooler creates a near vacuum phase in a vacuum chamber. At reduced atmospheric pressure in the vacuum chamber, water boils at a lower than normal temperature. The rapid evaporation of water from fresh vegetables under

very low atmospheric pressure inside a vacuum chamber reduces the vegetable temperature quickly. The vacuum cooling method takes about 30 minutes to cool the vegetables down to 5°C. This short pre-cooling time prevents excessive dehydration and keeps vegetables turgid and fresh. Vacuum cooling is the most efficient pre-cooling system for leafy vegetables and is especially useful for farms with a high volume of harvest.

Forced-Air Cooler Technology

By forcing cold air through a load of vegetables, the forced-air cooling method rapidly reduces the vegetables' temperature. The produce are cooled in batches and cooling time ranges from 1 to 10 hours. Larger loads packed in thicker materials such as bags and paper cartons take a longer time to cool down. Forced-air cooling may result in a bottleneck when faced with limited room capacity and huge quantity of harvested vegetables. Forced-air cooling is more suitable for fruited and rooted vegetables.

Demonstration on Vacuum Cooler and Forced-Air Cooler Technology

To increase awareness of vacuum and force-air cooling technology and illustrate the importance of vegetable pre-cooling, the Agri-Food and Veterinary Authority (AVA) conducted a demonstration workshop for local farmers and members of the Singapore Fruit and Vegetable Importer and Exporter Association in December 2008.

Twenty-six participants from the farming industry and business cluster attended the demonstration and some participants expressed interest in the procuring pre-coolers for their farms. Currently, a vegetable farm and a bean sprout farm are equipped with vacuum coolers.

The benefits of using pre-coolers were illustrated using three types of vegetables, namely, brinjal, cucumber and *xiaobaicai*. The vegetables that were pre-cooled had longer shelf-life with lesser incidence of yellowing compared to non pre-cooled vegetables. Shelf life for *xiaobaicai* stored at 5°C, under forced-air cooling and vacuum cooling was extended by another 2 to 4 days, and 9 days respectively.

Although there is additional cost incurred in implementing cold-chain distribution, starting with the installation of an effective pre-cooling system, the added cost would be offset by savings resulting from reductions in trimmings. Vegetables that are not distributed under a cold chain system, routinely suffer post-harvest losses in the form of yellow, wilted and rotten leaves which require manpower resources to trim and dispose off. The extended shelf-life for pre-cooled vegetables will also result in a higher turnover of sales at the retail end.

Fishy Business

Singapore's Ornamental Fish Industry Grows from Strength to Strength



top: Parliamentary Secretary for National Development, Dr Mohamad Maliki Bin Osman and President & Chief Executive, UBM Asia Trade Fairs Pte Ltd, Mr Jime Essink officiating the opening ceremony of Aquarama 2009

centre: Dr Maliki visiting the exhibition booths

bottom: AVA established its presence at the show through the exhibition booth that showcased the achievements of the strong public-private partnership over the last 20 years

Supported by the Agri-Food and Veterinary Authority (AVA), Aquarama 2009 was officially opened by Dr Mohamad Maliki Bin Osman, Parliamentary Secretary for National Development on 28 May 2009 at the Singapore Suntec International Convention and Exhibition Centre.

11th Aquarama – A Booming Success

The Aquarama has flourished since its inception in 1989 to become one of the world's leading international exhibitions for the ornamental fish industry. The inaugural Aquarama attracted 66 companies from 14 countries. Today, more than 160 companies from 23 countries were represented at the event. For the first time, the exhibition saw participation from China and Korea.

Singapore's Thriving Ornamental Fish Trade

The success of Aquarama is a reflection of Singapore's standing in the global ornamental fish trade. In its latest publication, the Food and Agriculture Organisation (FAO)¹ cited Singapore as the Ornamental Fish Capital of the world. This highly coveted title is a testament of the strong partnership between the industry and the government.

AVA's Strategic Role in Helping Singapore Achieve its Leading Position

Initiated by AVA, the Ornamental Fish Business Cluster has been instrumental in enhancing Singapore's leading position in the ornamental fish export area. This is achieved through the continuous upgrading of skills of the industry, advancing through research and development, as well as identifying and addressing the critical issues faced by the industry. AVA also actively facilitates the development of the ornamental fish trade and industry in Singapore through its quality assurance schemes and technology support services.

Joint efforts between AVA and the Singapore Aquarium Fish Exporting Association have resulted in significant improvement of fish survival rates during transportation, from 78% to 99%. This has allowed local exporters to extend the guarantee period, which was highly valued by overseas buyers, and enhanced the industry's competitiveness.

To boost our export potentials, AVA has also worked closely with the industry on the accreditation of farms to meet the requirements of the Convention on International Trade in Endangered Species of Flora and Fauna (CITES). This has resulted in 27 CITES-registered Dragon Fish breeding farms in Singapore.

Backed by such a strong private-public sector partnership, the Singapore ornamental fish industry is poised to scale greater heights in the global arena.

¹ Source: FAO Fisheries and Aquaculture Information and Statistics Service 2008. "Fisheries commodities production and trade 1976-2006"

Fishy Business

Workshops Improve Management Skills and Productivity of Local Fish Farms

Since December 2007, the Agri-Food and Veterinary Authority (AVA) has been conducting workshops on fish farm management for farm managers from coastal foodfish farms in the East and West Johor Strait. To date, six sessions of the workshops have been successfully conducted.

These workshops aimed to improve the farmers' management skills as well as their farms' productivity. Topics covered in the workshop included general aquaculture and global trends, nutrition, health and disease management, farm environment monitoring and a field demonstration on basic water quality monitoring procedures. Farmers were also introduced to a new cage design suitable for use in coastal fish farms. To help raise awareness of AVA's R&D efforts, a field visit was made to AVA's Marine Aquaculture Centre and AVA's Experimental Fish Farm.

During the course of training, active discussions were seen between participants and AVA officers. The topics surrounded fish farming issues and challenges faced by the farmers. Based on the feedback received from participants, AVA will include topics such as fry and fingerlings handling, fish transportation and fish grading in future workshops.



top: On-site workshop on coastal cage construction at a coastal fish farm
bottom: AVA officers and farm managers engaged in active discussion



Harvesting of seabass from the farm

Singapore's foodfish supply received a boost recently when the first harvest from its largest local commercial fish farm, Barramundi Asia Pte Ltd, hit the market.

Production started in June 2008 with the fish farm stocking its first batch of "Super Seabass" fingerlings from the Agri-Food

First Harvest from Singapore's Large Scale Off-shore Fish Farm Hits Market

and Veterinary Authority's (AVA's) Marine Aquaculture Centre (MAC). AVA officers provided technical assistance and helped improve the seabass fingerlings' survival and growth performance. The fish took less than 6 months to achieve a harvesting size of 500g – 600g with survival rates of over 80%. The fish were harvested and sold freshly chilled at the Jurong Fishery Port.

Using advanced open water fish farming technology from Japan and Europe, the fish farm cultures seabass in the harsh open water conditions off Pulau Semakau. Plans are in the pipeline to set up a marine finfish nursery on Pulau Semakau.

To further boost the fish farm's production capability and increase the local foodfish supply, AVA will continue to work closely with them to provide on-site technical assistance for the large-scale nursery production of seabass fingerlings.

Fishy Business

Seminar Opens Doors to Market and Utilise Milkfish in Singapore

The Agri-Food and Veterinary Authority (AVA) conducted a seminar on 27 February 2009 to introduce Milkfish as a cultured fish species to the local seafood industry. A total of 34 participants comprising fish processors, farmers and staff from ingredient companies attended this seminar. During the event, participants were introduced to the farming and utilisation of milkfish and sampled AVA's R&D products which included: Milkfish croquette, Milkfish Japanese puffs, Milkfish cheesy ball, Milkfish ball, Milkfish wrap, Milkfish Mexican fingers and Miso Milkfish belly. Participants responded

favourably to the products and five companies have expressed interest to market and utilise Milkfish in Singapore.

Scrumptious Value-Added Milkfish Products

To help boost the consumption of locally farmed boney milkfish, AVA initiated studies on processing milkfish into value-added bone-less fish products.

Five types of products were produced from milkfish meat mince, namely, Milkfish Croquette, Milkfish Japanese Puff, Cheesy Milkfish Ball, Milkfish Wrap and Milkfish Mexican Fingers.

Milkfish Croquette



Made from freshly mashed potatoes and milkfish meat, the Milkfish Croquette is lightly seasoned with pepper and salt. Thumbs up for the crispy outside and inner melt-in-the-mouth sensation!

Milkfish Japanese Puff



Using Japanese ingredients such as black sesame seeds, *wasabi* and layers of crispy seaweed, this product puffs up when deep fried.

Cheesy Milkfish Ball



This product has a meaty texture with a crispy outer coat. Prepared with freshly fried onions and mushrooms, the savoury flavour is balanced with a subtle tinge of lemon fragrance. And did we mention about the special surprise of mozzarella cheese oozing from the centre of the milkfish ball? It's totally awesome!

Milkfish Wrap



The wrap deep fried for crispiness has a filling that tastes like lightly steamed egg with milkfish meat. Carefully seasoned with Chinese herbs, this dish will go very well with *sambal belachan*, a treat for those who love spicy food.

Milkfish Mexican Fingers



A mixture of tortilla chips and selective spices were used to concoct that special Mexican flavour. These bite size snacks are a hit across all age groups.

EDITORIAL COMMITTEE

Advisor

Dr Choo Li Nah

Editor

Pamela Teo

Members

Dr Astrid Yeo
Dr Chew Hong
Dr Leow Su Hua
Dr Paul Chiew
Tan-Low Lai Kim
Dr Teng Moey Fah
Rubinah Karyeo
Seah Huay Leng
Renee Chou
Nurshilla Harith
Elaine Pong

Contributors

Tariam Singh
Lee Siew Mooi
Thomas Tan
Christina Tan
Chua Gek Cheng
Vijay Krishnan Chandran
Tay Jwee Boon
Jiang Jun Hui
Tan Yit Wee
Neo Chin Heng, Malcom



Design by pupilpeople