

**8 Food Bites**  
Embracing Automation  
for Productivity

**11 Food Bites**  
For the Freshest  
Produce, Go Local

**12 Corporate Cuts**  
She Helps  
Farmers Grow



# AVA VISION

Issue 1/2016

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issue  
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## TAKING IT INDOORS

With the help of technology, more farmers in Singapore are looking to grow vegetables in enclosed spaces.

Most of what we eat in Singapore comes from overseas. This has impact on food security, as this means we are susceptible to price fluctuations and potential supply disruptions. If we could grow more of our own food and reduce our dependence on imports, we would have a greater buffer against such threats.

One good way to increase local production of vegetables in land-scarce Singapore is to use non-arable spaces innovatively to grow crops. Enter the concept and technology of indoor vegetable farming.

Indoor farming is becoming more popular with the advent of novel technologies that enable crops to grow in climate-controlled environments. In enclosed spaces such as brick-and-mortar factories, crops are grown on multi-layer shelves – a method which saves space. In addition, indoor farming keeps pests out, thus eliminating the need for pesticides. It also allows us to cultivate temperate plants that otherwise would not be able to thrive in Singapore's tropical climate.



■ At Farm deLight, vegetables are grown indoors, using LED lights, soil, and organic fertilisers.

Continued from p.1



■ Instead of sunlight, vegetables in Farm deLight depend on the red and blue LED lights to photosynthesize.

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*“Hi-tech farming needs to constantly move beyond the comfort zone to improve, and increase efficiency. It should even aim to go beyond the boundary of Singapore.”*

**Mr Edmund Wong**  
**General Manager**  
**Farm deLight**

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### **Farm deLight**

There are currently five AVA-licensed indoor vegetable farms in Singapore. One of them is Farm deLight. Located in a flatted factory in Upper Aljunied, Farm deLight looks somewhat like a darkroom where photographic films are processed into prints. Red and blue LED lights have replaced sunlight, while air-conditioning and measured ventilation provide the ‘fresh air’ that vegetables need. Farming here is

also less back-breaking since the crops are tiered vertically.

Capitalising on the advances in LED technology, Farm deLight began experimenting with LED lights as growth lights for crops about two years ago. Once they had proven the effectiveness of their growth lights, their focus soon switched to vegetable production. They are currently planning to relocate to bigger premises in Boon Lay.



According to the company, it now produces a variety of microgreens, herbs, as well as leafy vegetables (lettuce, mizuna, kale, rucola, and ice-plant). Most of these are currently sold to restaurants such as Joel Robuchon and The Naked Finn, as well as those in Fullerton Hotel and Fullerton Bay Hotel.

Mr Edmund Wong, General Manager at Farm deLight, says his foodservice clientele appreciates the fact that his vegetables are grown differently – indoor, using LED lights, soil, and organic fertilisers. “At first, we started out using chemical fertilisers but switched to organic fertilisers with the aim of producing the best quality produce – as well as to be environmentally-friendly. The switch was initially very difficult, mainly due to the nature of organic fertilisers and the availability of good organic fertilisers and cost. However, it is worth it.”

This approach, combined with their innovative lighting technologies, has been working out well for Farm deLight. But indoor farming is not without its unique challenges, as Mr Wong points out: “One pertinent issue, as with all indoor farms, is the high power consumption. So it is a race to see who can reduce the use of power per unit weight of the vegetables.”

Although still in its infancy here, indoor farming holds much potential, as Mr Wong adds: “There are plants that are not viable indoors, and plants that will not grow outdoors either. Hi-tech farms and traditional farms will complement each other.”

## Panasonic Factory Solutions Asia Pacific

Panasonic Factory Solutions Asia Pacific is another indoor vegetable farm that has taken root in Singapore. With a brand name that is synonymous with consumer electronics, some may find it hard to imagine Panasonic as a producer of fresh seasonal vegetables. The company says its vegetables are already being supplied to Japanese restaurants, F&B outlets in Resorts World Sentosa, as well as selected Isetan, NTUC FairPrice, and Meidi-Ya supermarkets.

The company’s parent division in Japan initiated research and feasibility studies in 2010 and established an indoor farm at Jalan Ahmad Ibrahim three years later. Here, vegetables are grown in optimum conditions, where temperature, humidity, and carbon dioxide levels are monitored and



■ Panasonic’s indoor vegetable farm at Tuas produces about 81 tonnes of vegetables per year.

*Continued from p.3*



■ *The vegetable crops are grown in optimum conditions where temperature, humidity and carbon dioxide levels are monitored and controlled.*



■ *Panasonic agriculture engineers monitoring the quality and growth progress of the vegetables.*

controlled. Crops, now grown using soil, are also exposed to red and blue LED lights, resulting in half the average cultivation time required as compared to traditional farms, the company says. Soon, Panasonic hopes to combine the advantages of soil-based cultivation and hydroponics.

Mr Wong Chiak Yeen, Executive Director for the Factory Division foresees indoor vegetable farming to be a potential growth portfolio, “given the global shortage of arable land, climate change, and demand for high quality and stable food supply”, he says. “We aim to supply 5 percent to Singapore’s local vegetable production by March 2017.”

The journey towards this goal required some mettle. “It is important to have perseverance and the right mind-set, as a lot of R&D is involved to successfully grow crops, such as those which are typically imported, in an indoor environment,” Mr Alfred Tham, Assistant General Manager of the Agriculture Business Unit explains.

Nevertheless, the company now has a production volume of up to 81 tonnes of mainly leafy vegetables per year, and has the capability to produce 38 crop varieties. “This was achieved in part with the support of AVA’s Food Fund, which has contributed to the farm’s automation processes such as irrigation, soil mixing, and dispensing of seeds,” Mr Tham adds.





■ R&D done by AVA shows that water usage can be reduced by 70% when vegetables are grown indoors using fluorescent lighting, automated drip irrigation, and plug trays with peat substrate.

### AVA Helps Companies Get In(doors) on the Action

Besides providing funding support, AVA also keeps abreast of emerging technologies and actively equips itself with the relevant know-how. This enables us to introduce new concepts and provide technical advisory when the industry takes up a potentially viable technology. Indoor farming in particular is one area set for a leap forward.

AVA scientists began studying the indoor farming concept in November 2009, after attending the Symposium on Light in Horticulture in Japan, where keynote experts viewed this as the prospective food security solution. At that time, most available findings were based on temperate lettuce, Japanese vegetable varieties, and herbs. In 2010, we looked into the indoor farming of Asian leafy vegetables using fluorescent and LED lights.

Over the past few years, we developed and refined our indoor four-tier vegetable seedling production systems that have the potential to raise productivity by four to six times. One such system – that uses fluorescent lighting and an ebb-and-flow irrigation method – has proven to reduce water consumption by 90 percent. Seedlings also grew faster. In another configuration using automated drip irrigation, water usage was reduced by 70 percent and individual plant weight increased. In addition, we have established effective cultivation protocols for growing *xiaobaicai*, *gailan*, *naibai*, *caixin*, and loose lettuce using these systems.

The key to this success is the control over growing conditions, which only indoor farming can provide. Not only is lighting, watering, and temperature optimised, but automation means that labour costs are reduced too. AVA has been sharing these research findings with the industry, as well as conducting demonstrations and providing technical advisory to a number of indoor farmers, such as Farm deLight and Panasonic.

We hope that the farms of the future will make use of integrated vertical and indoor systems, automation, and robotics so as to intensify their production while cutting down on manpower. For information on the technical and funding support provided by AVA, visit <http://bit.ly/AVAfarms>.

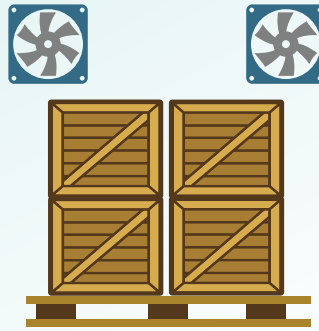
## PRE-COOLING METHODS FOR VEGETABLES IN PACKING HOUSES

Home-grown and imported vegetables are repacked by farmers, importers, and distribution centres before being delivered to retailers. These highly perishable vegetables require proper handling and good cold chain management, so that they stay fresh and wholesome. Pre-cooling is an essential step along the cold chain – it rapidly reduces the temperature of vegetables to an optimum of 2-6°C. Here are the most common types of pre-cooling methods that help to keep vegetables fresh and minimise wastage due to deterioration.

## TYPES OF PRE-COOLING METHODS & THEIR FEATURES

### ROOM COOLING

*Cool air is circulated by convection.*



#### Suitable Vegetables

All fruited vegetables and fruits



#### Advantages

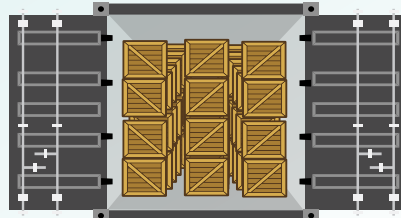
- Clean and simple
- Low installation & maintenance cost
- Provides temporary storage after pre-cooling

#### Disadvantages

- Slow
- Uneven cooling at the beginning
- Not suitable for leafy vegetables due to prolonged cooling hours, resulting in dehydration

### VACUUM COOLING

*At reduced atmospheric pressure within the vacuum chamber, water rapidly evaporates from the produce's surface, removing heat in the process.*



#### Suitable Vegetables

Leafy vegetables and mushrooms



#### Advantages

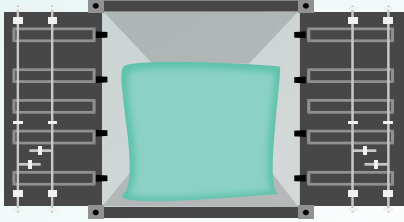
- Rapid
- Uniform cooling for all vegetables
- High energy efficiency

#### Disadvantages

- Risk of wilting due to moisture loss
- High cost
- Requires packaging with holes for water evaporation

## FORCED AIR COOLING

*Cold air is drawn and forced through crates of vegetables covered by a canvas sheet.*



**Suitable Vegetables**  
All leafy, fruited and rooted vegetables



### Advantages

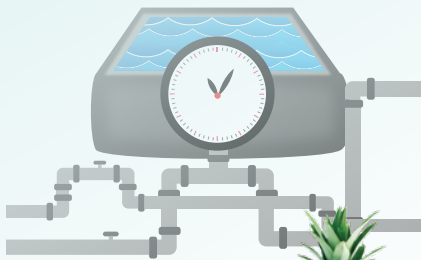
- Clean and simple
- Rapid
- High heat transfer performance
- Low installation & maintenance cost

### Disadvantages

- Slower as compared to vacuum cooling

## HYDRO COOLING

*Vegetables are showered with or submerged in cold water that is circulated through the heat exchanger.*



**Suitable Vegetables**  
Fruited vegetables and fresh fruits tolerant of prolonged exposure to wet conditions



### Advantages

- Rapid
- High energy efficiency
- Provide means to clean vegetables (e.g. with chlorinated water) to prevent spoilage

### Disadvantages

- Additional step of drying required
- Additional effort required to monitor water quality and cleanliness of cooler daily

## ICE COOLING

*Layers of crushed ice are added on top of the vegetables.*



**Suitable Vegetables**  
Broccoli, carrot, Chinese cabbage, green onions and commodities that have a high respiration rate



### Advantages

- Rapid
- High heat transfer performance
- Prevents any moisture loss from vegetables

### Disadvantages

- Additional weight (from crushed ice and high water content from melting ice) could increase the risk of physical injury and rotting of vegetables
- Risk of chilling injury to vegetables if period of icing is prolonged

## OTHER PRE-COOLING TIPS TO TAKE NOTE OF

- Do not load pre-cooling facility beyond its optimum capacity.
- When stacking produce, allow adequate air-circulation to ensure all vegetables can be evenly cooled.
- Use proper receptacles (such as vented boxes and baskets for forced-air cooling, and waxed cartons or Styrofoam boxes for hydro-cooling).
- Transfer vegetables out from the pre-cooling facility immediately after pre-cooling, to avoid over-cooling or dehydration of the vegetables.
- Use potable water for pre-coolers to minimise any food safety concerns.
- Separate ethylene-sensitive vegetables from ethylene-producing ones.
- If a chiller is used for pre-cooling, keep it closed at all times to minimise temperature and relative humidity fluctuations.



*Extracted from Good Handling Practices in Packing House for Vegetables, published by AVA. Scan to download the complete copy for free.*





## EMBRACING AUTOMATION FOR PRODUCTIVITY

Forward-looking farmers turn to automation to expand production, with the help of AVA.

AVA encourages Singapore's farms to embrace technology, particularly in terms of automation that serves to overcome manpower constraints. Hi-tech mechanised systems can also help to raise productivity. In addition, innovation and automation make the farming sector more attractive to the younger generation. In turn, they will bring their ideas and energy to the sector and play a part in ensuring Singapore's food security.

AVA's Agriculture Productivity Fund (preceded by the Food Fund, which was available from 2009 to 2013) plays a vital role in rejuvenating the farming industry here. These funding schemes help farmers to adopt advanced production methods. Successful applicants, such as Seng Choon Farm and Yili Vegetation and Trading have successfully used the Food Fund to automate farm processes and increase productivity.



■ *The Layer House System*

### Seng Choon Farm

Seng Choon Farm used to produce about 410,000 eggs every day from its premises in Lim Chu Kang. With a shot in the arm from AVA's Food Fund in November 2014, Seng Choon took about a year to raise daily production to 450,000 per day.

The improved output was a result of installing the Grower House System and Layer House System for housing pullets and hens, respectively. These systems helped to reduce manpower requirements, and the key to this has been a larger-scale use of automation.

In the Layer House System, hens can perch on raised bars within a colony cage that is more spacious than traditional ones. A slight gradient along the cage floor allows eggs to roll gently onto an automated collection belt as they are laid. The manure falls through the wire mesh floor onto a conveyer belt for automatic removal. In addition, automatic nipple drinkers are installed to ensure adequate water supply at all times.

In the Grower House System, positions of the automatic feeder and nipple drinkers can be easily



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*“Seng Choon sees upgrading and automation as a way to stay competitive and reap benefits from new technological or scientific development.”*

**Mr Koh Yeow Koon**  
**Managing Director**  
**Seng Choon Farm**

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■ *The Grower House System*

adjusted according to the size of the chicks as they grow. In both systems, climate control is automated to ensure the optimal health of the birds.

The returns on investment certainly did not come instantly. Rearing areas for young chickens and laying hens had to be rezoned. While construction and installation was

being carried out, a lot of work was put into designing effective workflow controls and putting in place additional biosecurity measures.

Despite the time and effort required, Seng Choon is encouraged by the increased productivity. It is currently undergoing major upgrading works to further raise annual production to 220 million eggs, or over 600,000 per day.



■ *With the new automated packing machines, Yili is able to save up to 84 man-hours per day.*

### **Yili Vegetation and Trading**

Automation has been the way forward for one successful vegetable farm too. Yili Vegetation and Trading received funding from AVA in February 2013. It used its award to purchase horizontal pillow packing machines, which replaced the old way of manually inserting

and sealing vegetables in their packaging.

The increase in efficiency was easily noticeable – previously, it took eight workers six hours to pack one tonne of vegetables. With the new machines, it would take just five workers four hours to pack

*“Singapore’s agriculture is very important, and to sustain it there is a need to increase production and overcome climate changes. In order to do so, we need to learn, upgrade, and change the way we work. New methods and innovative systems will help attract the younger generation to take up farming.”*

**Mr Alan Toh**  
**Director**  
**Yili Vegetation & Trading**



■ The bigger refrigerated truck, coupled with upgraded cold room storage facilities, helped Yili to improve its cold chain management of vegetables.

the same amount. In all, about 84 man-hours per day were saved. Going automated also meant having to redesign the packaging to suit the packing machine and in all, the switch also took more than a year.

In addition to its new packing machines, Yili Vegetation and Trading upgraded its cold room storage facilities from a capacity of 10 tonnes (three days’ supply) to 25 tonnes (a week’s supply).

A bigger, new refrigerated truck was also purchased. This meant that the freshness of vegetables can be better preserved before reaching retail, thus reducing wastage.

Not resting on these improvements, the farm is now upgrading its greenhouse system with electrical roll up films, so that ventilation and the amount of sunlight entering the greenhouse can be controlled.

### About the Food Fund and APF

In 2009, the first tranche of AVA’s Food Fund was launched to support food diversification efforts and local farm capability development to enhance productivity. Subsequently, two more tranches were launched in 2011 and 2013. Under the Food Fund, AVA awarded 310 projects and disbursed \$17.5 million, as at 31 March 2016.

In 2014, AVA’s Agriculture Productivity Fund (APF) replaced the Food Fund. APF provides funding support to local farmers seeking to expand their production capabilities through investment in new farming systems, equipment, and infrastructure. As at 31 March 2016, 38 projects were awarded and \$1.17 million were disbursed.

To learn more and apply, visit <http://bit.ly/AVAfood> or send an email to [ava\\_apf@ava.gov.sg](mailto:ava_apf@ava.gov.sg).



# FOR THE FRESHEST PRODUCE, GO LOCAL

Did you know that farms in Singapore produce a variety of leafy green vegetables?

Their freshness is guaranteed, as it takes less time for the harvests to reach our supermarkets. Also, local farms adhere to good farming practices and stringent food safety guidelines, so these vegetables are safe to savour.

Learn how to recognise these fresh leafy vegetables and store them properly.

## Leafy Vegetables

Varieties commonly grown in Singapore



Kai Lan



Kang Kong



Cai Xin



Xiao Bai Cai



Butterhead Lettuce



Kow Peck Chye



Sweet Potato Leaves



Sharp Leaf Bayam

Look out for vegetables with these labels on the packaging:



Country of origin: Singapore

**Practise these storage tips**  
Do your part to ensure the local vegetables you buy stay fresh and safe at home.



Store vegetables in the **refrigerator** as soon as possible.



**Do not mix vegetables with fruits in the same storage compartment** as fruits produce ethylene gas that can cause yellowing of green vegetables.



**Pack vegetables in plastic bags or containers** before storing them in the vegetable compartment of the refrigerator.



## SHE HELPS FARMERS TO GROW

For AVA scientist Fadhlina Suhaimi, job satisfaction comes from helping vegetable farmers improve their livelihood, thereby enhancing Singapore's food supply resilience.



### Q: What is it that you do at work?

Ms Fadhlina Suhaimi: I am a Senior Scientist in the Vegetables and Fruits Section of AVA's Technology and Industry Development Group. My role is to drive horticulture R&D so as to help local vegetable farmers enhance their productivity. My colleagues and I facilitate the development of the agricultural industry through technology transfer and collaborations with external partners such as technology suppliers and research/educational institutes.

Because Singapore has limited land, we have to think of innovative ways to ensure our local vegetable farms maximise production. Singapore's farms are already very intensive – our vegetable farms go through 10 to 12 crop cycles per year, unlike the four to six cycles of overseas farms. To intensify farming even further, we continually study various farming systems and look at agronomic practices as well as plant genomics to increase crop yield.

■ *Fadhlina with the founder of Sky Greens Farm, Mr Jack Ng, at AVA's Sembawang Research Station, where the Vertical Farming System prototype was undergoing research and development.*

### Q: What are the main challenges you face at work?

Farmers may not always approach trials and experiments the same way scientists do. As scientists, we pay great attention to details and factors that critically affect experiment outcomes. At a recent farm trial, for example, we studied how LED lights could increase yield, and asked the farm to switch the light on for four hours. However, the trial results differed greatly from our lab findings, and we couldn't figure out why – until we found out by chance that staff at the farm had left the light on for more than four hours.

Another challenge is convincing farmers to adopt new technology to increase production. Farmers usually hesitate due to costs – but they are often willing to make an attempt to do things differently and embrace technology when they come up against roadblocks.



It gives me a personal sense of satisfaction to help farmers overcome adversity. I like the challenge – and at the same time, I get to help farmers improve their livelihood, and ultimately contribute to Singapore's food supply resilience.

### Q: Tell us about notable projects that you are or have been involved in.

In 2011, my R&D team and I, together with DJ Engineering, co-developed a vertical farming system (VFS) prototype for the production of leafy vegetables. I designed, planned, and conducted the R&D to establish the agronomy method for the system, and provided inputs to fine-tune it. The prototype was at least five times more productive than conventional farming. The project was awarded the Minister for National Development's R&D Merit Award 2011. Also, the VFS was commercialised by Sky Greens – a spin-off company of DJ Engineering – and Singapore's first vertical farm was officially launched on 24 October 2012.

### Q: What do you enjoy about your work?

There is a surprising amount of interest in farming in Singapore. In the course of our work, we get to interact with people who love growing vegetables in the community. We introduced a pilot programme to help community gardeners upgrade their vegetable-growing skills and knowledge.

There are also residents who are interested in growing vegetables at home but cannot, due to a lack of space. So, we introduced vertical farming systems such as the DIY veggie pipe. It was an overwhelming success – to this day, many people still call in to ask for our expertise in setting up veggie pipes.

These interactions with the public give me a personal sense of achievement, as I am able to raise awareness of local farming. This is important because some people don't even know that we have farms in Singapore. I hope I can inspire the next generation to take up farming.

In addition, we get invitations from schools and tertiary institutions to give talks on home farming. Through school talks and visits, I also build up my networks and contacts. This allows me to keep abreast of the latest on-goings among community growers and explore possible collaborations.

### Q: What are essential skills for your job?

You need perseverance, and you have to be open-minded. Do not give up when you hit a wall in your pursuit of a solution; sometimes the answer is just around the corner. Tap expertise from various fields – some technology solutions may originate from a completely unrelated field.



■ Collaborative test-bedding of drip fertigation system using cocopeat to cultivate leafy vegetables at the farm.



## LOCAL PRODUCE FOOD TRUCK

In support of local farms as an important secondary source of food supply, AVA has been spreading the word on the goodness of home-grown produce. Together with our food truck partner Kerbside Gourmet, AVA reached out to lunch crowds at Toa Payoh HDB Hub, Fusionopolis, and Ocean Financial Centre from 16 to 23 March 2016.

The food truck dished out tapas made using locally produced eggs, fish, and vegetables. Visitors redeemed sampling portions by taking pictures with the food truck and uploading their photos onto Facebook or Instagram. In addition, the photo booth and vegetable stall attracted many people from all walks of life.

Lending a voice to AVA's call to support local produce, radio deejays were on-site to provide 'live' commentary and interact with visitors. To further encourage the public to visit the food truck, AVA also produced a music video that parodies the 'Unbelievable' MTV performed by Mediacorp Artiste Chen Tianwen. Watch it at <http://bit.ly/AVAunbelievable>.



Photo: John Connell



## PET EXPO 2016: THE 'PAWFECT MATCH' SPEED-DATING ADOPTION DRIVE

As part of efforts to encourage pet adoption, AVA and its animal welfare partners organised the second speed-dating event for dogs, following a highly successful turnout in 2015. Held during the Pet Expo on 25-27 March 2016, AVA's 'Pawfect Match' booth provided an intimate platform for 35 shelter dogs and about 160 potential pet owners to interact. Other animals such as cats, rabbits, and hamsters were up for adoption as well. In all, some 80 animals were adopted as a result of the event. Watch a video of the adorable animals as well as interviews with visitors and animal welfare groups at <http://bit.ly/petexpo2016>.





## AMENDMENTS TO IMPORT REQUIREMENTS FOR RETURNING RACE HORSES

Horses that take part in international races or competitions overseas may now return to Singapore more easily, if the period of return is within 14 days. These horses will now be tested for Equine Infectious Anaemia, Equine Viral Arteritis and Equine Piroplasmiasis after they arrive in Singapore, and will be released from quarantine upon negative test results. Horses that had been overseas for more than 14 days will continue to be tested for these diseases before arriving in Singapore. Details of the new conditions can be found on the AVA website at <http://bit.ly/AVAanimalsimport>.



## NEW FOOD (AMENDMENT) REGULATIONS 2016

The Food (Amendment) Regulations 2016 came into effect on 2 February 2016. Key changes include:

- Provision to allow the use of a new additive (advantame) and a new ingredient (bovine lactoferrin in infant formula).
- Prohibition of the import, sale, and advertisement of raw milk for human consumption.
- Requirement that food products labelled as “organic” (or similar terms) must be certified as organic under an inspection and certification system that complies with the CODEX guidelines for the production, processing, labelling and marketing of organically-produced foods, GL 32-1999; or similar.
- Provision to allow the use of the generic term “modified starches” for labelling purposes.

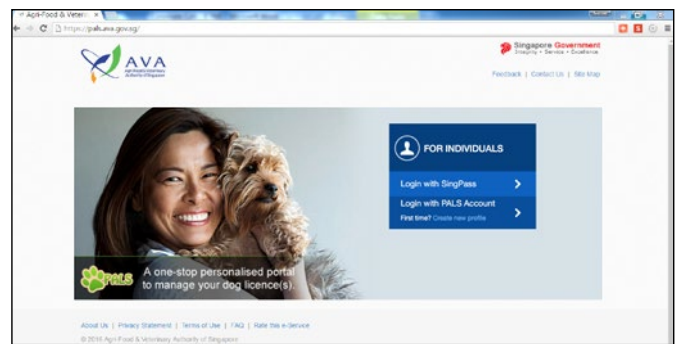
Scan to download the Food (Amendment) Regulations 2016 or go to <http://bit.ly/AVAFoodRegs16>.



## NEW ONLINE DOG LICENSING SYSTEM

AVA's Pet Animal Licensing System (<https://pals.ava.gov.sg>) has been launched to provide greater convenience for pet owners in managing dog licences. Pet owners can now log in and:

- Update their personal particulars.
- Change dog ownership.
- Upload supporting documents.
- Download a copy or monitor the status of the dog licence.
- Sign up for email notifications and make online payments for licence renewal.



## AVA APPROVES 90 NEW HEALTH CLAIMS

A review led by AVA resulted in the approval of 90 new health claims within 18 months. These claims describe the general growth, development and the functions of the body, in relation to nutrients which preferably have a locally established recommended daily allowance. They are also approved by two or more developed countries.

This expanded list allows food traders to supply healthier food options to meet increasing consumer demand.

Some examples of the recently-approved health claims include:

- Zinc contributes to normal cognitive function
- Magnesium is necessary for normal nerve and muscle function
- Iron is necessary for normal immune system function

This review, conducted by the Advisory Committee on Evaluation of Health Claims, involved relevant public agencies, academia, and food industry associations.

Scan to download the revised list of approved health claims and their criteria or go to <http://bit.ly/AVAhealthclaims16>.





## Corporate Cuts

### MR LIM NEO CHIAN SUCCEEDS MR KOH SOO KEONG AS CHAIRMAN



■ Mr Lim Neo Chian

Mr Lim Neo Chian succeeded Mr Koh Soo Keong as Chairman of the AVA Board on 1 April 2016 for a two-year term. Mr Lim was previously Deputy Chairman of the Board.

Mr Lim, who is Chairman of Ascendas Hospitality Trust Management Pte Ltd and Deputy Chairman of Gardens by the Bay Company Ltd, brings to AVA invaluable experience from his career in the military, public, and private sectors. He previously headed the Singapore Tourism Board, ST Engineering, and JTC Corporation. He was also Chief of Army from 1992 to 1995.

On his new appointment, Mr Lim said, “I am honoured to take on the Chairmanship of AVA. Moving ahead, our agri-food and veterinary ecosystem faces both emerging opportunities, as well as challenges. Working closely with the various stakeholders, we can now harness technological advances to find new solutions to our food supply and safety. I look forward to building on Mr Koh’s dedicated work with AVA, and to guiding the AVA team to further advance its contributions to Singapore.”

Mr Koh Soo Keong served on the AVA Board for 14 years, and helped AVA grow as an organisation to better address its varied responsibilities. Under Mr Koh’s guidance, AVA strengthened food security for Singapore, including raising local farm productivity and ramping-up



■ Mr Koh Soo Keong

agricultural R&D and innovation. He also spurred AVA to embrace private sector partnerships, and a robust risk management- and science-based approach to grow and diversify our overseas food sources while upholding food safety standards. He has steered AVA to be more pro-enterprise as well as collaborative in engaging the various industry segments it regulates.

“AVA has won and earned the trust of our stakeholders. I feel very proud when I hear someone say food is safe because AVA says so,” Mr Koh said in an address during AVA’s annual staff conference. He added that this trust can be seen in the way overseas food exporters often use Singapore as a gateway to bigger markets in the region. This is because AVA has a very good reputation for its internationally recognised food safety standards, and authorities in these countries trust AVA. He continued, “AVA has an illustrious and dynamic successor as Chairman in Mr Lim Neo Chian. Working with the Board, management and staff of AVA, I am sure he will steer AVA to new heights.”

MND and AVA wish to express our appreciation to Mr Koh for his distinguished service with AVA. We also warmly welcome Mr Lim as the new Chairman of the Board. For a complete list of AVA Board Members, go to <http://bit.ly/AVABoardMgt16>.



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