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NATIONAL Poultry NEWSPAPER

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David Tinworth with wife Sue.

Tinworth worthy recipient of Australian Poultry Award 2019

IN 1978, David Tinworth graduated from the NSW Institute of Technology (now UTS) with a Bachelor of Applied Science, majoring in Microbiology and Biochemistry, while working in human pathology at Douglass Laboratories.

He completed a Masters of Business Administration at Macquarie University in 1983 and was conferred an Honorary Doctor of Applied Science by RMIT in 2008.

As Biotechnology Research Manager at Wallace International, in 1985 David initiated a commercial research project with Kevin Whithear at the University of Melbourne to produce a live MG vaccine (Ts-11).

He subsequently formed his own company, Bioproperties, in 1989 to bring the MG Ts-11 vaccine to commercial reality.

In 2019, Bioproperties celebrated its 30-year anniversary, and its flagship innovative products, Vaxsafe MG and MS, have allowed poultry industries in Australia and worldwide to drastically reduce antibiotic use.

David recognised the Australian market for biologicals was too small to support the necessary research spending and give a return on investment without the possibility of export.

With this in mind, he travelled to international poultry industry and scientific meetings and networked extensively, which led to early licensing deals and registration of MG Ts-11 in Japan, the US, South America, Europe, China and South Africa.

David established Australia's largest live vaccine manufacturing facilities, which supply critical live vaccines to the local poultry industry and more than 70 countries.

He runs the only specific-pathogen-free chicken operation in Australia, critical to biosecurity operations and vaccine manufacture.

In response to the massive losses resulting from Marek's disease, David imported a low-passage Rispens masterseed of known efficacy as well as the skilled people and technology to campaign manufacture of the vaccine.

He did this in the CSL influenza manufacturing labs in the off season.

In the largest field trial ever undertaken in Australia, he 'saved' the Australian poultry industries as the effectiveness of this approach became apparent.

The initial success allowed for rapid growth of Bioproperties and funding of further research and development opportunities such as salmonella,

pasturella, Newcastle disease, infectious bronchitis, infectious laryngotracheitis and eimeria.

Bioproperties was founding commercial partner of the Australian Poultry CRC and developed live vaccines for pasteurella, salmonella, NetB technology and coccidiosis – all aids to decreasing antibiotic dependence of intensive animal industries.

David and Bioproperties continue to provide support for research in developing antigens and vaccines across a broad range of institutions in Australia.

Currently, Bioproperties has six major research projects at six institutions. Bioproperties and associated entities have about 170 employees across Victoria and NSW.

David is noted for his lateral thinking, problem-solving capacity, persistence and enthusiastic optimism.

He has achieved a great deal for the world's poultry industries and has seen numerous projects through from creative scientific idea to commercial application, which is a unique skill.

He is a most worthy recipient of the Australian Poultry Award 2019.

Dr Juliet Roberts
WPSA Australian Branch President

Manic month for Poultry Hub Australia

POULTRY Hub Australia has been busy with all sectors of our organisation.

Our training is still progressing well, with a new set of young people being employed in the industry last month.

We also showed off our fantastic educational resource, the virtual chicken, at the AgriFutures EvokeAg conference in Melbourne.

Finally, our open call for research projects closed on March 1 and we had an overwhelming response!

The industry committee members who review all projects submitted to PHA will have their work cut out this year!

Last month we attended the Australian Poultry Science Symposium in Sydney.

This meeting has been running for over 30 years and is a fantastic opportunity to learn and engage with many brilliant poultry scientists from both Australia and abroad.

It was a great opportunity to catch up with colleagues and discuss cutting-edge science.

As part of the Chook Chat Shack (Poultry Hub Australia, AgriFutures Chicken Meat and Australian Eggs), we hosted the poster session and ran our second mentor speed dating event.

Like last year, the mentor event was a hit.

The aim of the session was to connect early career researchers (within five years of completing PhD or exceptional circumstances) working in an Australian university or research institute with active members of the Australian poultry industry.



by **TAMSYN CROWLEY**
Director



reduced crude protein diets'.

It was a very tight contest this year, with only one mark separating first and second.

Well done, Peter!

Poultry Hub Australia has a suite of new initiatives to offer this year, including travel grants and a host of opportunities for career development.

Keep an eye out on our website poultryhub.org or subscribe to our eChook newsletter.

If you would like to get involved or have any ideas to share, please contact us at poultryhub@une.edu.au

By improving the dialogue between researchers and industry, there will be a greater opportunity for industry relevant research, thus increasing the chance of success for researchers and the impact on industry.

Thanks to Dr Amy Moss for facilitating the event.

Only last year Dr Moss was a mentee and now following such great advice she has moved onto facilitating the whole event!

During APSS 2020, PHA had the pleasure of awarding the third Mingan Choct Award to Mr Peter Crystal from Sydney University.

His paper was clearly presented and caught

the eye of the judges.

Peter presented two papers but won the award for his presentation entitled 'Growth performance of broiler chickens offered maize versus wheat-based,



Mr Peter Crystal was the winner of the Mingan Choct Award for best postgraduate presentation at APSS 2020.



Key industry figures were happy to share their knowledge and wisdom with mentees at the mentor speed dating event.

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Poultry Industry Calendar of Events

2020

MAR 25-26 – APF Poultry Nutrition Symposium, Bangkok, Thailand E: nmukhtar@uaar.edu.pk

MAR 25-27 – Mediterranean Poultry Summit, Cordoba, Spain www.mpn-wpsa.org/spain2020

APR 8-9 – National Poultry Show, London, Canada www.westernfairdistrict.com/national-poultry-show

MAY 17-19 – PIX/AMC, Gold Coast www.pixamc.com.au

MAY 26-28 – Meat, Fish, Seafood & Poultry Summit, Crocus Expo International Exhibition Center, Moskovskaya, Russia www.10times.com/meat-fish-seafood-poultry-summit

JUN 5-9 – National Poultry Show, Sydney, NSW www.rasnsw.com.au

JUL 7 – Annual Poultry Club Show Ipswich Showgrounds, Ipswich, QLD

AUG 16-20 – World Poultry Congress, Paris, France www.wpcparis2020.com

NOV 4-5 – Poultry Xpo, Stratford, Canada www.poultryxpo.ca

2021

JUN 21-23 – European Symposium on the Quality of Poultry Meat and XIX European Symposium on the Quality of Eggs and Egg Products, Krakow, Poland www.eggmeat2021.com

How to supply event details: Send all details to National Poultry Newspaper, PO Box 387, Cleveland, Qld 4163, call 07 3286 1833 fax: 07 3821 2637, email: design@poultrynews.com.au

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Dealing with spanners in the works

A SERIES of events leads to a cycle, and yet as farmers you are all aware that even in the cycle of a day, spanners find a way into the works!

As sure as the sun rises at dawn and sets in the evening, eggs will need to be packed to get to your customers.

But what happens when it all comes crashing down and you need rainfall and machinery repaired?

You can complain to someone but it's often you as the owner or manager who needs to fix the problem with machinery, and we hope our prayers will be answered as to requests for rain.

It's great to see there has been widespread rain, which will lead to crops.

It may be a while to harvest, with an understanding that feed will not be plentiful at the cost producers would like for good profits, but improvement is on its way.

It's pleasing to know that part of the cycle being improved (the weather) will eventually lead to a return of dollars in the bank.

It is important that good follow-up rain continues and for those who are struggling, please consider the support available, such as loans offered through the regional investment bank (www.ric.gov.au).

For those who feel isolated and need someone to speak with, support is available and I encourage you to read through the Managing Stress on Farm booklet at farmerhealth.



**Egg Farmers
of Australia Inc.**

by **MELINDA HASHIMOTO**
CEO



org.au/wp-content/uploads/2020/01/Managing-stress-on-the-farm-2020.pdf

Contact numbers are also provided in the booklet.

A meeting of agricultural ministers was held in Tasmania recently in relation to the Australian Animal Welfare Standards and Guidelines.

As I write, we await further information on the names being released publicly and further details on the process in the coming weeks.

When further information is available, a note will be forwarded to all Egg Farmers of Australia members.

Travel was recently undertaken to Western Australia to attend the Animal Welfare Act Review with Commercial Egg Producers Association executive officer Rachel Wilson.

It was also a great opportunity to meet up with CEPA farmers and Egg Farmers of Australia WA director Ian Wilson and hear about the great work undertaken pertaining to the WA petition.

I then travelled to Tasmania for a workshop attended by farmers

and government agencies (health, food and agriculture related) in conjunction with Egg Farmers of Australia South Australia/Tasmania director Dion Andary.

The following day we were fortunate to have a farm visit with Danny Jones (chair of Australian Eggs) and John Sattler (farm manager of Pure Foods Eggs).

I very much enjoyed not only seeing the system and machinery employed in the operation but also the way in which the farm makes it accessible for people to visit and have an understanding and appreciation of egg production.

The Pure Foods Eggs

tours also linked in with the local café and I think this is a wonderful initiative in order to support other businesses in the region.

Annabel Johnson (NSW Farmers), Jim McDonald (vet) Margo Andrae (Australian Pork Limited) and I attended the Select Committee hearing in NSW pertaining to Animal Cruelty Laws.

The report on this review will be available on April 2.

Further information is available at parliament.nsw.gov.au/committees/listofcommittees/Pages/committee-details.aspx?pk=263

In February I attended the Economic and Infrastructure Committee meeting at the invitation of LT's Eggs in Victoria.

Egg Farmers of Australia Victoria director Tony Nesci, Victorian Farmers Federation Representatives Laurie Mannix and Kellie Quayle and the whole LT's Eggs team – Brian, Danyel and Renay – did a wonderful job bringing the farm to parliament with 3D goggles

for the MPs to view the farm and answer their questions.

At the time of writing I was looking forward to attending a function in Queensland in early March run by AHA and will be visiting South Australia towards the end of the month.

It is very important to have the opportunity to engage with farmers around the nation.

A Board review was undertaken the last Board meeting of Egg Farmers of Australia, held in February.

A final report will be provided to the Board at our next meeting in March and we look forward to providing updates to our members in relation to how Egg Farmers of Australia will continue to progress and move forward.

If you would like further information about what Egg Farmers of Australia is doing to help your business, please join us by becoming a member and completing a membership form online at eggfarmersaustralia.org



Photo: Erol Ahmed

Price-taker farmers must be energy savers

WHILE farmers are familiar with the interconnectedness between energy, water and food production, policy and regulatory developments continue to treat these as distinctly separate areas.

Siloing these issues does not allow collaboration on the policy nexus that is required to address the complex problems associated with them.

Current government policy does not provide essential and enabling services such as electricity and water at a 'fair cost' for agriculture.

Where energy is concerned, over the past 10 years the price of electricity has increased at about 10 times the rate of inflation.

A critical input for intensifying agriculture, electricity has now

become a major, and in some cases unsustainable, cost for farm businesses including those from the poultry industry.

The Queensland Farmers' Federation is working to address the rising cost of electricity by delivering the Energy Savers Plus Program Extension with support and funding from the Queensland Government.

The project has reached a major mile-

stone, with half of the 200 farm energy audits now complete.

The audits provide options for farmers to reduce their energy consumption and carbon emissions as well as make important bottom-line savings and productivity gains.

For example, a southeast Queensland chicken meat farm and ESPPE participant found the audit provided helpful guidance about where to spend

their capital investment in the farm.

The need to deliver adequate ventilation, heating and lighting for the birds' welfare means the farm is a large energy user, consuming over 500,000kWh each year and costing more than \$100,000.

The audit compared the benefits of installing variable-speed fans to reduce consumption and improve the power factor with the potential savings of installing two 100kVAR power factor correction units.

While the fans would reduce consumption and improve power factor, at a cost of \$36,000, the power factor correction units would provide a quick return on investment at a relatively low cost by comparison.

A demand reduction of 62kVAR would be achieved, saving the farm \$9347 each year on their electricity bills after implementing this recommendation alone.

Australia has gone from having a competitive advantage in energy costs to being one of the most expensive countries in the world, resulting in many irrigated and intensified farm businesses losing their ability to compete globally, risking significant job losses and lower levels of production.

Without more deliberate action to resolve water and energy issues imposed by current policy approaches, the likelihood of perverse and wasteful outcomes will increase.



**QUEENSLAND
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FEDERATION**

by **GEORGINA DAVIS**
CEO



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THIS month, let's get philosophical.

About our feathered friends, that is.

While it may seem odd that an industry publication about poultry would cover anything

beyond the pragmatic, perhaps excepting debate about such ethical and topical questions as whether we should even eat chicken or eggs, or whether hens are as happy in cages as they are free ranging, let's give it a go.

The reason for my digression is I discovered and bought an amazing book, titled *A Short Philosophy of Birds*, at the 2020 Perth Festival's Literature and Ideas Weekend.

Held in February at the University of Western Australia and previously known as the Readers and Writers Festival, it's a treat for those of us who love diving into a good book on a cold winter's day, or in this case, balmy summer's day and then pondering what the book really means and what the authors are trying to say.

Anyway, this delightful little hardback, first published last year by WH Allen, part of Penguin Random House UK, was authored by French couple Phillippe Dubois (an ornithologist) and Elise Rousseau (a philosopher and journalist).



Cant Comment
by
BRENDON CANT

Good combo, me-thinks!

In their introduction they philosophise over what lessons birds can teach us.

Interesting question and one which those who've not read the book might answer "nothing".

Having now read this charming, challenging little book and spent a lifetime with birds, both observing in the wild and keeping and breeding all sorts, from cockatoos to parrots, eagles to hawks, pheasants to quail, chooks to ducks and pigeons to doves, to name but a few, I can't possibly outline all the philosophical thoughts of the authors, but merely offer some crumbs.

So, here we go on a quick flight around the philosophical question of what lessons birds can teach us and how they may guide us in many ways, helping us to reflect on our lives.

No surprise I'll first take us to the chapter titled 'Living life to the fullest, the philosophy of the bathing hen'.

"Seeing a hen take a dust bath gives us a sense of what one of the greatest pleasures in the world can be. The hen's bath should give us pause for thought. Why

don't we bathe with the same sense of purpose? Dogged as we are by duties and commitments, we rarely find a moment to experience true delight in the act of cleansing ourselves. The hen doesn't wash if she is stressed. She doesn't take her usual jubilant bath. But we still wash even if we're worried or tense, so how can we manage to savour the moment, as the hen does?"

Another chapter, 'How to be free, Opening the cage', verges on the problematic and the pragmatic when philosophising over how a caged hen reacts when freed.

"The poor animal, hitherto confined in a cage so small she could hardly turn around, is stunned by her freedom. She starts by exploring only a few square metres around her. She will spend weeks gradually venturing further before she finally regains the liberty to move around as she wishes."

The authors argue that it would still be wrong to claim that some birds

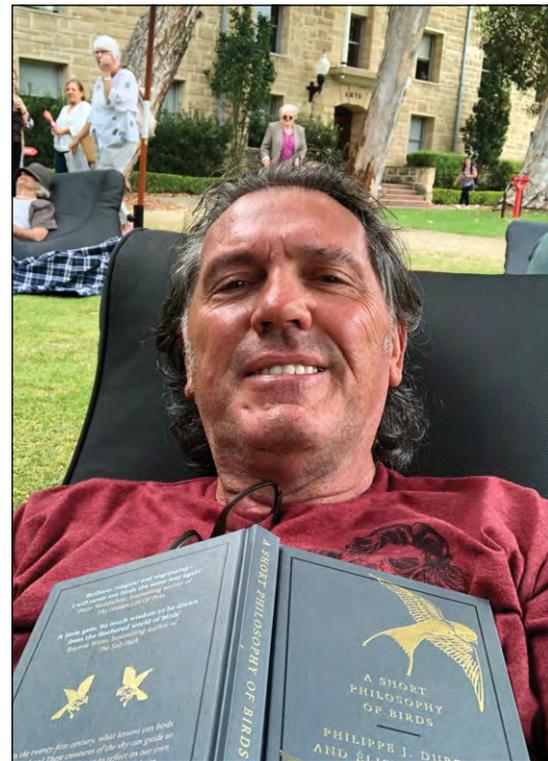
prefer to live in cages: "When birds have become conditioned to living in captivity, too much freedom all at once frightens them. They fear for their safety and are afraid to explore a new environment."

Having said that, the authors go on and ask the question "Do we not feel the same sometimes? What if we were to take a child or even an adult, who had only ever lived in a high-rise block of flats and released them into the forest? Wouldn't they come running back, begging to be taken home?"

They conclude the chapter by proposing the best way of keeping or protecting someone is surely to make their nest welcoming so they'll want to come back to it.

I'll give Phillippe and Elise the final word: "Perhaps that's what we need: a harmonious balance, blending the advantages of domesticity and liberty."

Sounds very liberating and very free range to me.



A laid back, philosophical columnist contemplates the lives of our feathered friends in the restful grounds of The University of Western Australia.

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Not everything is simply black and white. The columnist balanced the books with these two buys. Enigmatic indigenous actor David Gulpilil, 66 years old and battling lung cancer, is today confined to a small home in Murray Bridge, South Australia. He longs to once again range free in his homeland, Ramingining, Arnhem Land.

Simple solution to ensure raw egg safety

SALMONELLA is a key cause of foodborne gastroenteritis in Australia and case numbers are increasing, with most outbreaks linked to eggs, poultry meat, pork, dairy and fresh produce.

Flinders University researchers have found a simple solution for preventing salmonellosis affecting eggs through surface contamination, giving crucial assistance to Australia's vast food services industry.

Raw eggs are used in many food products such as mayonnaise, mousse, eggnog and artisanal ice cream.

However, a problem is associated with eggshells being contaminated with the bacterium *salmonella enterica* serovar typhimurium.

The Flinders research team aimed to develop a decontamination method for removing ST from the eggshell without impacting usability.

Using equipment commonly found in commercial kitchens, the researchers decontaminated eggs by placing them in a sous vide cooker with water heated to 57C.

Complete decontamination of ST was achieved by treating eggs for nine minutes.

The results of the first study to look at decontamination of ST on the eggshell were recently

published in the journal 'Foodborne Pathogens and Disease'.

The decontaminated eggs were found, by chefs using measurements and acceptability scores, to have no significant difference in their quality or performance as an ingredient when compared with nontreated eggs.

You can go online to find a preview of 'A Successful Technique for the Surface Decontamination of *Salmonella enterica* Serovar Typhimurium Externally Contaminated Whole Shell Eggs Using Common Commercial Kitchen Equipment' (November 2019), a paper by Thilini Keerthirathne, Kirstin Ross, Howard Fallowfield and Harriet Whiley.

A second study by the Flinders environmental health research team examined the effectiveness of current Australian guidelines recommending raw egg mayonnaise should be prepared and stored under 5C and adjusted to a pH less than 4.6 or 4.2.

Despite these guidelines, a significant number of salmonellosis outbreaks continue to be recorded every year in Australia.

The researchers found the survival of *salmonella typhimurium* in mayonnaise is significantly improved at 4C

and lower temperatures protected ST from the bactericidal effect of low pH.

Flinders environmental health researcher Thilini Keerthirathne said, "We found the preparation of mayonnaise at pH 4.2 or less and incubating it at room temperature for at least 24 hours could reduce the incidence of salmonellosis."

"But there is a risk storing mayonnaise at 37C.

"If the pH is not correctly measured, the warmer temperatures will promote the growth of salmonella.

"As such, it is crucial to ensure the pH of the mayonnaise is at pH 4.2 or less."

This study, 'The Combined Effect of pH and Temperature on the Survival of *Salmonella enterica* Serovar Typhimurium and Implications for the Preparation of Raw Egg Mayonnaise' (November 2019) by TP Keerthirathne, K Ross, H Fallowfield and H Whiley, has been published in 'Pathogens' journal.

PhD candidate Ms Keerthirathne said the results of the two studies will help decrease the current levels of foodborne salmonellosis outbreaks related to eggs and raw egg products in Australia.

It is estimated 4.1 mil-

lion cases of foodborne illness are recorded annually nationwide, including 30,000 hospitalisations and 100 fatalities.

Salmonellosis is one of the most prevalent causes of foodborne illness in the country, increasing from 40.9 per 100,000 population in 2005 to 71.5 per 100,000 population in 2015.

A common source of salmonellosis has been identified as raw eggs and egg products.

Background

Salmonella enterica is transmitted via food, the environment, water, people and animals, and often causes gastroenteritis in humans.

Common foods associated with salmonellosis in outbreak investigations and source attribution studies include eggs, poultry meat, pork, beef, dairy products, nuts and fresh produce.

More than 70 percent of salmonellosis in Australia is estimated to be transmitted through contaminated food.

Worldwide salmonella infections, excluding those caused by *S. typhi* and *S. paratyphi*, were estimated to cause 93.8 million cases of gastroenteritis per year, 80.3 million of which are considered foodborne.



Flinders University researcher Thilini Keerthirathne investigated salmonellosis on eggshells.



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Photo: Department of Fire and Emergency Services Western Australia

Farm production value holds despite bushfires, drought

THE value of Australian agricultural production is forecast to remain high despite bushfires and prolonged drought, with overseas demand balancing drought-related falls in farm output and incomes.

ABARES' chief commodity analyst Peter Gooday said the value of farm production in fiscal 2019-20 was expected to fall slightly to \$59 billion, down on the previous year's \$62 billion and above the 10-year average due to higher prices for livestock and some other agricultural commodities.

"Widespread bushfires over the 2019-20 summer are not expected to have had a significant impact on the agricultural sector on the whole," Mr Gooday said.

Mr Gooday recently launched the latest Agricultural Commodities report at the ABARES Outlook 2020 conference in Canberra.

"The bushfires and smoke impacts in some areas were locally devastating," he said.

"The majority of Australia's agricultural production and exports, however, takes place outside the affected areas."

This past year, Mr

Gooday said, was another drought-impacted one, with many regions having experienced their driest 12 months on record, even as others – particularly in Victoria – saw improved conditions, making for an uneven national outlook.

"Farm production and average farm incomes are estimated to have fallen for a second straight year in drought regions, with incomes for all broadacre farms projected to fall 8 percent to \$153,000 per farm in 2019-20 – about 4 percent below the 10-year average," he said.

"In NSW we are expecting farm cash incomes to be close to zero this year.

"It's as bad as things have been at a state level in the past 20 years – and some regions are substantially worse than the average."

For dairy farmers, average farm cash incomes nationally should increase from \$120,100 per farm in 2018-19 to \$165,000 per farm in 2019-20, with modest improvement for about 73 percent of Australian dairy farms due mainly to higher farmgate milk prices.

"Those gains come from comparatively low levels in Queensland, parts of

Victoria and NSW, and drought-related falls in milk production along with high feed and irrigation costs are constraining improvement," Mr Gooday said.

"Meat and livestock prices have stayed high as African swine fever has decimated China's swine herds, driving red meat prices up and requiring Chinese consumers to look elsewhere.

"Without those good prices, this year would look a lot worse.

"Livestock prices medium-term are expected to soften but remain high, though coronavirus poses a significant risk as Chinese demand for agricultural products has declined under restrictions put in place to contain the outbreak, particularly for items like seafood and wine."

Mr. Gooday said in 2019-20 Australia would have the lowest number of beef cattle since 1990 and lowest sheep flock since 1904, with production 12 percent lower than five years ago.

"Over the medium term to 2024-25, a gradual recovery in the production of livestock and livestock products is expected to

follow herd and flock rebuilding, though recovery will take several years and livestock-related production in 2024-25 will still be 8 percent below the 2014-15 peak," he said.

"The value of Australia's agricultural exports overall is forecast to fall by 11 percent to \$43 billion in 2019-20, which in real terms is 16 percent below the record value of exports in 2016-17, reflecting three consecutive annual falls in crop exports.

"We can expect grains and oilseeds exports to rebound quickly, but livestock numbers will take some time to recover and for cotton the speed of recovery will depend on how quickly irrigation storages are replenished.

"The signing of phase one of a trade deal between the US and China is a welcome sign of easing tensions."

But the deal contains some very ambitious targets for agricultural imports, and the implications of that for Australian agriculture are not yet clear.

The report is available at awe.gov.au/agricultural-outlook

Future needs of protein featured at Queensland conference

FOLLOWING the success of the 2018 Intensive Ag Conference, Toowoomba and Surat Basin Enterprise recently hosted a new event, Protein 2020, bringing together the pork, poultry, beef and dairy sectors with the view to share best practice, advocate for common policy change and allow collaboration across the sectors.

The Protein 2020 Conference was held in Dalby on March 4, discussing the future needs and availability of water for our intensive animal industries, the threats and opportunities of African swine fever, industry updates and key investments and the brightest new innovation assisting our protein sectors.

The following day fea-

tured a site tour of a feedlot, followed by a networking dinner.

TSBE Food Leaders Australia general manager Bruce McConnell said with Queensland as Australia's largest producer and exporter of beef, this event is a must attend of industry participants.

"Queensland's agricultural industry is a major contributor to the state's economy, worth an estimated \$16.9 billion in 2014-15 and has the third-largest food processing industry in Australia," Mr McConnell said.

"Of this, \$13.3 billion was farm gate, with value-added products contributing \$3.6 billion.

"The Protein 2020 Conference showcased the many advantages

that see continued strong investment in the pork, poultry, beef and dairy sectors."

One of the event guest speakers was Gavin Ash, executive director of the Institute for Life Sciences and the Environment at the University of Southern Queensland.

Mr Ash is responsible for leading the new One Basin CRC bid, jointly between USQ and the University of Melbourne.

Mr Ash spoke on the Murray-Darling Basin Management and its current and future impacts on Intensive Animal Industries.

Protein 2020 was held at the Dalby Events Centre on Wednesday, March 4 and Thursday, March 5.

www.tsbe.com.au



Bruce McConnell, TSBE and Gavin Ash, USQ.

Eleventh visa cancelled for serious biosecurity breach

AN international visitor carrying eggs, a humidifier and battery pack has had their visa cancelled and been refused entry into Australia for a serious breach of our biosecurity laws.

It takes the total number of visa cancellations to 11 since October

2019, under the new biosecurity-related visa cancellation ground.

Minister for Agriculture David Littleproud said the 40-year-old Chinese national travelling from Taiwan to Brisbane failed to declare five exotic bird eggs intended for hatching.

"These eggs could have posed a real disease risk to Australian birds, with the potential for diseases to jump species to other native bird populations," Minister Littleproud said.

"Illegally imported bird eggs can transmit diseases and threaten Australia's multi-billion-dollar poultry industries, including avian influenza and Newcastle disease.

"As a result, this visitor's visa has been cancelled and he is ineligible to apply for another for three years.

"It is disappointing that some travellers are still not heeding warnings and continue to bring biosecurity risk items with them, despite clear warnings about the serious risks to Australia's economy and environment."

This passenger contravened the Biosecurity Act 2015 by knowingly failing to declare the eggs on their incoming

passenger card.

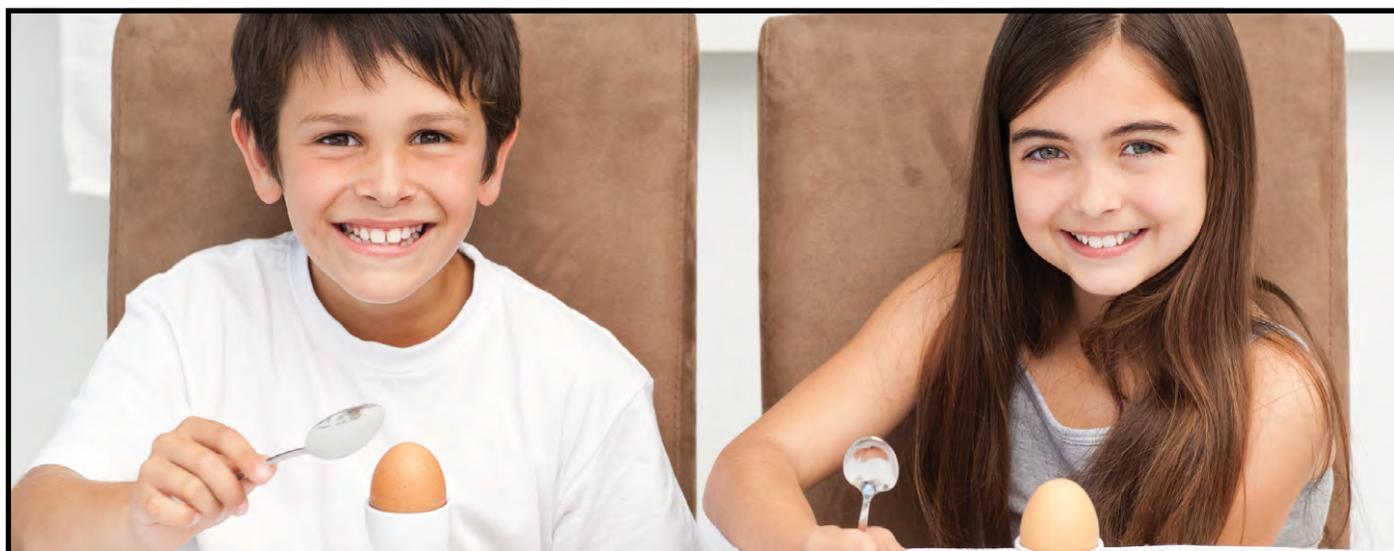
"The punishment must fit the crime and that's why we introduced tough legislation to allow Australian Border Force officials to cancel visitor visas when a passenger commits a serious biosecurity breach," Minister Littleproud said.

"Our government since last year has stepped up border inspections and allocated \$66.6 million for new technology, more biosecurity staff and detector dogs.

"Australia is lucky to be free from many of the world's most damaging animal diseases and plant pests that could have a significant environmental and economic impact if they arrived here.

"Threats to breach our border can come from international passengers bringing in risk items and failing to declare them, and authorities will not stand for it.

"This government is serious about biosecurity and we will keep working to ensure the risk control measures we have in place safeguard Australia from potentially devastating pests and diseases now and into the future."



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America's Cultivation Corridor announces first cohort of Cultivo Global Ag Innovation Program

ENTREPRENEUR leaders of startup companies based in Australia will participate in the inaugural cohort of the Cultivo Global Ag Innovation Program hosted by America's Cultivation Corridor.

The cohort will learn from and connect with Iowa's agricultural research and business leadership during a 10-day immersion program from May 11-21, 2020.

During the immersion experience, Australian startups will be introduced to the startup community and entrepreneurial ecosystem in Iowa, as well as be introduced to the US financial system and regulatory programs.

They will visit Iowa State University to engage with top faculty, ISU Research Park and ISU BioCentury Research Farm, tour several leading companies and meet with farmers.

The session will feature training and mentor support for pitch development and refinement for

each of the startups.

The program will conclude with opportunities to meet one on one with US investors as well as present their business to the investors of America's Cultivation Corridor and sponsors of the Cultivo program.

Judd O'Connor, US Commercial Business president at Corteva Agriscience and Chair of the board of directors for America's Cultivation Corridor said, "Australia is the perfect fit for the first cohort of the Cultivo program because of the country's strong ecosystem for developing and bringing new agricultural technologies to market."

"Connecting startups with Iowa's world-renowned researchers, industry leaders and farmers will build opportunities and better enable opportunities to introduce new technologies and services to benefit the world's farmers and consumers."

America's Cultivation Corridor will host and co-

ordinate the Cultivo Global Ag Innovation Program in partnership with its investors and supporting organisations.

The names of the participating companies will be announced at a later date.

AgriFutures Australia managing director John Harvey said, "This is a fantastic opportunity to connect Australian agtech startups with the US mid-west."

In conjunction with the Australian Trade and Investment Commission, we are thrilled to support this 10-day Iowa Immersion Program hosted by America's Cultivation Corridor (Cultivo).

"This program is hot off the heels of AgriFutures evokeAG 2020 -Asia-Pacific's premier agrifood tech event being held in Melbourne, Australia on February 18 and 19, 2020.

"It will support the 'think big, place yourself at the centre of the technology and connect on a global level' conversation we are aiming to have

with over 1300 delegates at evokeAG 2020.

"We look forward to meeting with the startups when they return from Iowa and to them sharing their learnings with the industries we support."

For more information on sponsorship opportunities or cohort participation, visit cultivationcorridor.org/cultivo or contact Bill Hunt, executive director at America's Cultivation Corridor at bhunt@cultivationcorridor.org.

Investors and partners of America's Cultivation Corridor are working together to accelerate the development of new technologies, strengthen Iowa's ag bioscience workforce and attract economic development, all focused on meeting the challenge of feeding a growing world population in a sustainable way.

More information is available at cultivationcorridor.org or by following on Twitter, LinkedIn, Instagram and Facebook.

Egg farmers lead way in producing more with less

A LAYING hen today lays 38 more eggs per year than a hen did 20 years ago, and it does so despite consuming 5 percent less feed.

That equals an extra 800 million eggs each year across Australia's national flock, produced with 42,000 tonnes less grain and an emissions saving of 30,000 tonnes of carbon.

These improvements are highlighted in the latest Australian Egg Industry Sustainability Report released recently, which demonstrates how the egg industry is progressing in important areas such as the environment, hen welfare, food security and rural livelihoods.

Other advancements include biosecurity improvements through a new virtual reality training module for farm workers, a solar energy feasibility tool, animal husbandry training for every egg farm in the country and new waste management technology turning manure into high-grade organic fertiliser.

The report released by the egg industry's national research body, Australian Eggs, comes after CSIRO

researchers canvassed the views of thousands of Australians to help egg farmers better understand evolving community expectations.

Australian Eggs managing director Rowan McMonnies said the industry is lowering its carbon footprint and better conserving resources in line with evolving mainstream community expectations.

"Eggs are in 95 percent of Australian households and are a staple in the national diet," Mr McMonnies said.

"While eggs already have a low carbon footprint relative to other farming industries, the CSIRO's community research showed us Australians expect to see all industries reducing their impacts over time.

"Productivity improvements in the egg industry have coincided with a lowering of an already small environmental footprint through better genetics, improved farm management, uptake of on-farm solar and new waste management technologies.

"Sustainability is more than just good

environmental stewardship, so we've also invested in a significant up-skilling of the national egg farm workforce to raise animal husbandry standards and created a new risk assessment tool to help farmers stay profitable.

"We're making these improvements because they're the right thing to do but it was pleasing to see in the CSIRO's community research report that trust in the egg industry increased over the past year."

The 2020 Sustainability Framework Report completes the second annual cycle of a three-year program of engagement with Australians, designed to ensure the industry farms eggs in a manner that is socially, environmentally and economically sustainable.

The full Sustainability Framework Report 2020 is available at australianeggs.org.au



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Dr Meagan Craven wins 2020 Minister's Award

DR Meagan Craven has been recognised at this year's Science and Innovation Awards in Canberra for her trailblazing research that could help shield laying hens from salmonella.

Minister for Agriculture David Littleproud announced Dr Craven as the winner of the Minister's Award for 2020 at the recent ABARES Outlook dinner. "Dr Craven is leading important re-

search that could reduce the growth of multiple strains of salmonella enteritidis in the guts of laying hens," Minister Littleproud said.

"SE is a pathogen in humans and can cause serious illness.

"Judges agreed it's an innovative and ambitious project addressing a growing problem for the poultry sector, with research outcomes that may be transferable to

other sectors.

"I'm delighted to announce Dr Craven as the winner of the Minister's Award for 2020."

The Science and Innovation Awards are a great example of harnessing the new ideas and new approaches from younger members of the sector.

"The range of projects presented, and the creative approaches to looking at industry issues, reminds me yet again of what a privilege it is to be Minister of such a diverse sector," Minister Littleproud said.

"It was a difficult challenge to select one of the extended research projects submitted by the winners tonight to receive the Minister's Award and additional grant funding.

"I congratulate all winners and nominees. "It is fantastic to see so many young people who have a passion for our agriculture sector."

For more details about Dr Craven's project 'Development of a culture system that simulates the gut microbiome for identifying effective novel antimicrobials', visit agriculture.gov.au/abares/conferences-events/scienceawards



Dr Meagan Craven received the 2020 Minister's Award from Agricultural Minister David Littleproud.

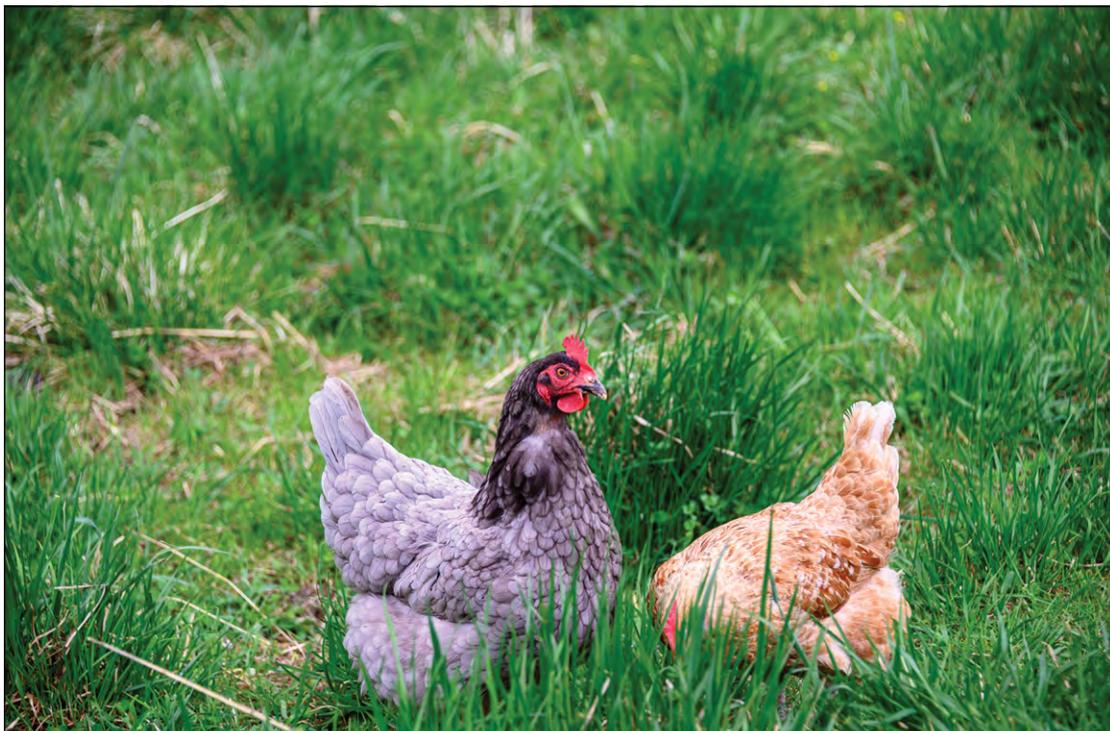


Photo: Etienne Girardet

Metro Group is going cage free

METRO Group, one of the largest retailers in the world, has committed to improve animal welfare across its supply chain by sourcing all its egg products from cage free suppliers, including in the most challenging markets around the world.

Stores in western and southern Europe will meet the deadline by 2022, with eastern Europe, including Russia and Ukraine, following suit in 2025.

The transition to using only cage free eggs will occur in Metro's remaining markets, which includes China,

by the year 2027.

Metro's decision is part of a bigger global shift in egg production now that more businesses produce cage free.

It has been hailed by animal protection groups around the world including Open Cages UK, which campaigns on the subject as part of the Open Wing Alliance – a global coalition of groups working to free hens from cages.

Metro has joined the long list of large companies that have made commitments to source exclusively

cage free eggs, such as Nestle, PepsiCo, Hilton, Unilever and Kraft-Heinz.

Across Europe, this means hundreds of Metro stores will now transition to only selling cage free eggs, which will impact the lives of hundreds of thousands of hens.

Hens that will now be able to enjoy more space, dust bathe and stretch their wings freely.

Open Cages UK CEO Connor Jackson said, "With this strong policy, Metro is cementing its spot as one of the most progressive

companies out there when it comes to animal welfare."

"We applaud the company for listening to its consumers and making a choice that will improve the lives of millions of hens around the world.

"We encourage all other companies that do not yet have a cage free policy to follow Metro's lead."

Metro is a large global wholesale company focusing on the hospitality and trader groups with reported sales of \$A45 billion.

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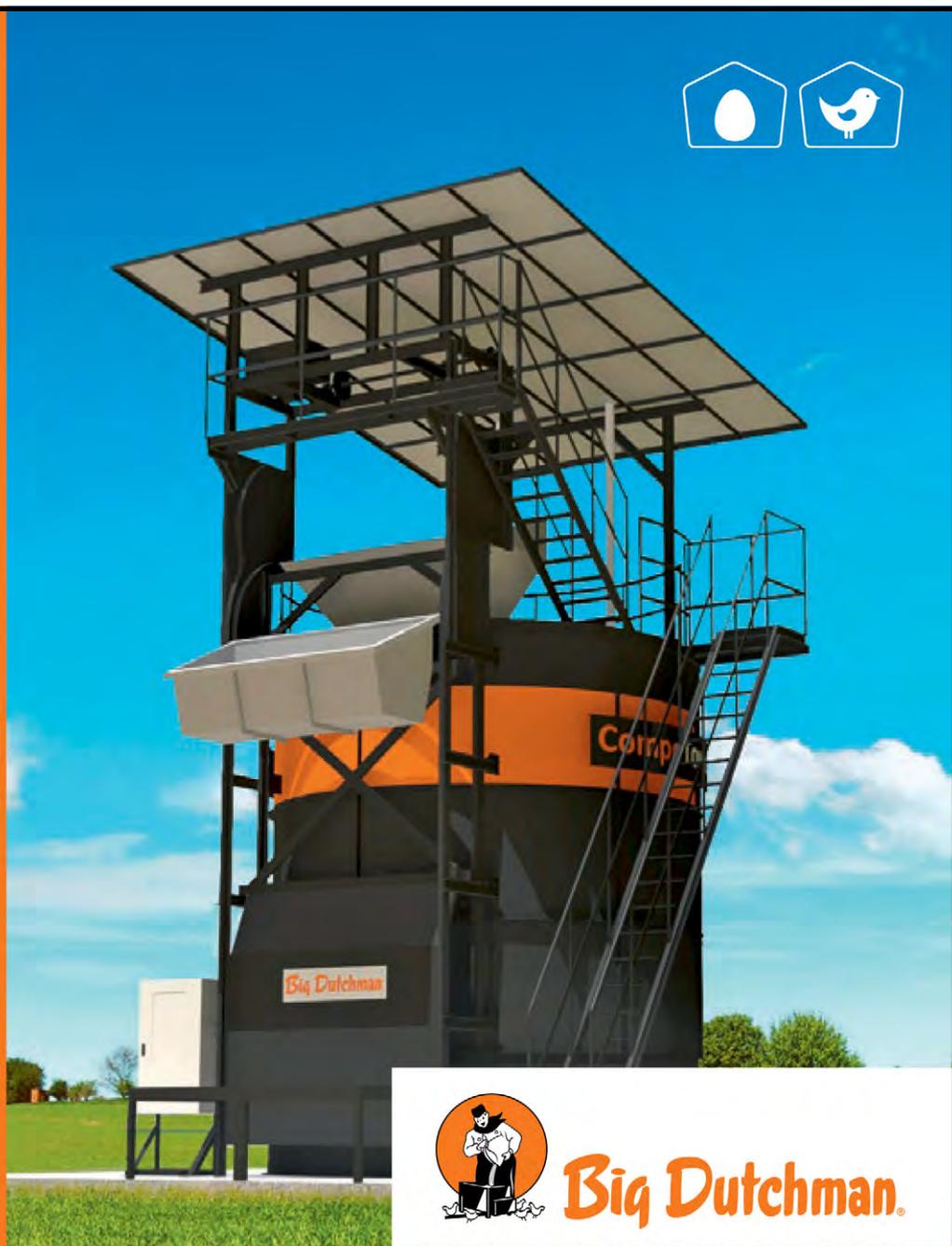
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Big Dutchman.

Mentoring program opportunity for individuals working in the chicken meat industry

ARE you seeking to advance your personal and business development skills?

AgriFutures Australia is seeking applications from individuals working in the chicken meat industry to participate in a mentoring program and applications close shortly.

The program seeks to empower business owners and leaders (including growers) through tailored mentoring experiences crafted to suit career stage, role and business size.

The opportunity is

open to anyone working in one of AgriFutures Australia's levied industries, which include: chicken meat, rice, honeybee and pollination, ginger, tea tree oil, pasture seeds, export fodder, thoroughbred horses, kangaroo, buffalo, deer and goat fibre.

This opportunity would suit someone who is seeking to advance their personal and business development by way of one-on-one mentoring.

The program can assist individuals with succession plans, de-

fining and setting long-term goals and providing a better basis for promotion and advancement decisions.

If you have experience and are in a decision-making role, mid-career, at a management level, or for those in the higher stages of their career, please consider applying.

Applications close 5pm Friday, March 13, 2020 (AEDT).

For more information, visit agrifutures.com.au/levied-industries-capacity-building

Insolvency-hit grain industry small businesses urged to protect themselves

SPEAKING at the 2020 Victorian Farmers Federation Grains Conference in Moama recently, the Australian Small Business and Family Enterprise Ombudsman Kate Carnell urged small businesses in the grain industry to take steps to future-proof their operations.

"Small businesses have been hit hard over the past 15 years with a spate of insolvencies across larger grain-buying businesses leaving millions owed to growers," Ms Carnell said.

"These Australian grain traders' insolvencies have cost small business growers more than \$50 million since the year 2000.

"It's important small businesses in the grains industry do what they can to protect their businesses.

"I'd encourage these small businesses to do their due diligence on customers by making sure they pay on time, checking the business register to confirm details and doing necessary credit checks.

"Grain growers

should try to avoid being reliant on one customer to reduce their risk.

"If a customer becomes insolvent, contact the external administrator to make sure you are recorded as a creditor and attend meetings throughout the process.

"Like all small businesses, grain growers should stop supply if they haven't been paid.

"Insolvency in the grain industry – particularly the impact it's had on small busi-

nesses – is an issue that is being looked at as part of our ongoing Insolvency Practices Inquiry."

The final Insolvency Practices Inquiry report is set to be handed down at the end of March.





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AgriFutures evokeAG 2020 conference wrap-up

AGRIFUTURES Australia managing director John Harvey revealed during the successful February event in Melbourne that evokeAG 2021 will head west. Following on from the success of two sell-out events in Melbourne in 2019 and 2020, Perth was named as the host city for the third edition of Asia-Pacific's premier agrifood tech

event on February 16 and 17, 2021. Embracing Australia, New Zealand and Asia-Pacific, evokeAG takes its inspiration from the diversity that the region has on offer. Perth is the perfect city to host evokeAG 2021, supported by the Western Australian Government's commitment to grow agriculture, fisheries and food industries.

"We designed evokeAG to be bold, brave and to bring together the Australia, New Zealand and Asia-Pacific agrifood tech ecosystem," Mr Harvey said. "It is therefore critical that we view what we do through a different lens, experience a different location and embrace a movement that will

drive real change across the entire region. "I encourage all our delegates – innovators, businesses, entrepreneurs, primary producers, researchers, universities and corporates to join us in the west for another great instalment of food, farm, future in February 2021." The proximity of Western Australia to Asia and South America, a strong global and local demand for their agricultural commodities, and a focus on growth and development, means Western Australia is perfectly positioned to take advantage of the collective desire for Australia to remain globally relevant and continue to challenge the conventions of what we grow, how we grow it and what we eat.

Together to share their ideas and innovations on the future of our agricultural industry." The day kicked off with a keynote speech from SVG Ventures – THRIVE CEO John Hartnett, the number one agrifood tech accelerator in the world. Mr Hartnett explored how we use technology to get more out of available resources to feed our growing population and evolving consumer demands. The Silicon Valley-based investor said events like evokeAG ensure Australian agtech startups are exposed to more global venture capital investment. "Australian entrepreneurs are not getting their fair share of venture capital investment," he said. "Entrepreneurs need access to global venture capital and corporate investors in order to scale globally."

"Events like evokeAG act as a catalyst to bring the key players within the ecosystem together and drive the focus on innovation within the sector." Sustainability was another strong focus of the program, with founder of The Future Market and Alpha Food Labs Mike Lee asking delegates: "What does sustainability taste like?" Bayer's head of Crop Strategy Frank Terhorst continued the theme, uncovering how we can shape the future of agriculture sustainably and responsibly with technology. "We are at a tipping point where both consumers and our planet demand a fundamental change in the agricultural system," Mr Terhorst said. "As we address the growing world chal-

enges, we need to find sustainable ways of food production that preserve both our natural resources and farmers' economic viability. "Embracing biotechnology, innovative crop protection products and digital innovation can help solve the paradox between production and preservation. "In doing so, agriculture becomes an important part of the solution in combating climate change and biodiversity loss, while helping to ensure food security in a sustainable way." More than 200 farmers flocked to the event, with sessions on emerging and established technologies to connect producers to remain competitive in the global marketplace, precision livestock and cutting-edge precision farming keeping farmers at the forefront of innovative thinking. Co-owner of The Madgett's Block vineyard in McLaren Vale, Oli Madgett said he was excited to be at evokeAG. "It's a great opportunity to meet some of the most interesting and dynamic people in agriculture, with insightful sessions on the key trends that are going to shape the coming decade of farming," he said. "The sessions on soil health (stop treating soil like dirt) and environmental sustainability (with Damon Gameau, who created the movie 2040) are top of mind in our case." During the day, delegates had the opportunity to connect with 38 innovative agrifood tech startups including a team addressing the 7 percent mortality rate in our beef industry, a multi-sensor ear tag, an advanced automated pollination system and a new on-farm test for bovine mastitis, which could save our dairy industry millions of dollars each year through a reduction in antibiotic treatment. Founder of FarmBot Monitoring Solutions Andrew Coppin said evokeAG is an important opportunity to connect with the farmers in the room to showcase the technologies that will revolutionise farming systems. "evokeAG has not only presented us with an exceptional opportunity to converse with farmers and showcase how our technology will assist to make them more productive and profitable, but also to engage with relevant investors, industry leaders and other agritech companies who are current or prospective collaborators," he said. "We are all striving to deliver better solutions for farmers that will help create more sustainable outcomes we can then take to the world stage. "Events like evokeAG help bring all the right parties together and provide the focus the sector needs to develop and scale truly game-changing technology. Elders joined evokeAG 2020 as the Platinum Partner for the second consecutive year. Elders managing director and CEO Mark Allison said the partnership is an ideal fit to mature the innovation ecosystem and take the industry to new heights. "evokeAG is an opportunity for the world's leading minds in food and fibre to explore what's next in



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The announcement was made at the end of day one of evokeAG where more than 1300 of agriculture's best and brightest filled Melbourne's Royal Exhibition Building. **Day one** The first day of the program saw more than 50 national and international speakers take to the stage and highlight new technologies, food markets, lessons on launching into international markets and investment opportunities. Mr Harvey said evokeAG aims to inspire and challenge new ways of thinking. "We are putting the Australian agrifood tech ecosystem on the global stage," he said. "In its second year, evokeAG has attracted more delegates, more speakers, more farmers, more startups and more investors and it's tremendously exciting to see all parts of the ecosystem coming to-

gether to share their ideas and innovations on the future of our agricultural industry." The day kicked off with a keynote speech from SVG Ventures – THRIVE CEO John Hartnett, the number one agrifood tech accelerator in the world. Mr Hartnett explored how we use technology to get more out of available resources to feed our growing population and evolving consumer demands. The Silicon Valley-based investor said events like evokeAG ensure Australian agtech startups are exposed to more global venture capital investment. "Australian entrepreneurs are not getting their fair share of venture capital investment," he said. "Entrepreneurs need access to global venture capital and corporate investors in order to scale globally."

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AgriFutures evokeAG 2020 conference wrap-up

from P10

agtech," he said. "I see Elders' role at the conference to be a voice of reason, ensuring the farmer is at the centre of everything we see."

"While it is always fascinating to see the latest developments for agriculture, my message is that fundamentally what really matters is how developments address one thing – on-farm productivity."

The end of the day saw delegates unite for the Festival of Food where insights were shared and the event's highlights revealed.

Department of Primary Industries and Regional Development WA manager Investment Susan Hall said evokeAG is a showcase of agtech not just nationally but internationally, and demonstrates how competitive Australia is in developing and adapting new technologies.

"While agtech can't solve all major issues facing agriculture in Australia, it can absolutely contribute to innovative solutions and advances for the industry," she said.

"evokeAG puts Australia at the forefront of the agtech scene"

Another delegate, NSW Hunter Valley farmer Annie Rodgers attended the event along with her husband Rowan.

"We've had to destock a lot due to the ongoing drought and we're at evokeAG to find out the latest innovations in Australian agriculture," she said.

Day two

More than 1300 delegates from 22 countries filled the Royal Exhibition Building in Melbourne for day two of evokeAG 2020.

Mr Harvey said evokeAG has once again delivered on its promise to deliver leading-edge farming insights from the best in the world, and the response has been amazing.

"Armed with the latest technologies, innovations and insights, we can dive into 2020 knowing we have the ability to respond to our changing markets and opportunities across the agricultural industry."

To kick off day two, leading Australian political journalist and former ABC *Insiders* program host *Barrie Cassidy* led a robust panel discussion on how we

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can best respond to population growth, increasing food consumption and a demand to cater for diversified diets.

Hungry Jack Cowin told the Plenary Session a long-term strategy is needed in Australia to drive innovation in agriculture.

"The DNA of Australia is entrepreneurial, we are early tech adopters in this country and we're well equipped in this regard," said Mr Cowin.

"My concern is the big stuff – what are the building blocks this country needs to use to make us successful over the next 40 and 50 years."

Head of startups in Australia and New Zealand at Amazon Web Services Rachael Neumann said research and development in startups is a critical foundation to drive innovation.

"At the moment Australia invests 1.87 percent as a percentage of gross domestic product and the global average is 2.3 percent," she said.

"In Israel, 4.9 percent of GDP is invested in R&D, so I think we still need to get better and from a policy perspective, if we want to drive innovation we need to exceed those numbers."

The two-day program saw more than 100 speakers from eight different countries take to the stage to inspire, challenge and transform the way we think about food and farming into the future.

Highlights of day two included the breakout session on how industry is adapting to Australia's water shortages.

Murray Dairy strategic project manager Amy Fay said producers are going through transformative change in their businesses in order to achieve the step change in water use efficiency required.

"One example in the dairy industry is the move away from traditional perennial ryegrass species to other crops and forages that are more water use efficient or flexible in their water requirements," she said.

"Adopting a different feedbase system can increase water use efficiency from 1t/ML to upwards of 3t/ML, or alternatively allow farmers to reduce irrigation altogether and use con-

served fodder when water availability is very tight.

"There are many ways farmers can increase water use efficiency on their farm."

"Across the industry, innovations in technology are only one small piece of the puzzle."

"Focusing on the value of water to their business, and the risks associated with volatile water availability will help farmers determine which practices are best suited to helping their business adapt to a water-limited future."

Later in the afternoon, Matt Kovac (Food Industry Asia), Mike Lee (The Future Market), Leslie Revitt (Woolworths), Fayaz Khazi (Elo Life Systems) and Tony Hunter (Futurist for Food) discussed the consumer trends impacting the food industry and the opportunities these trends are presenting for farmers, the supply chain and consumers.

Meanwhile, Cutri Fruit citrus grower Gaethan Cutri, the University of Sydney's Prof Salah Sukkarieh and Robotics Plus's Steven Saunders delved into whether farmers of the future will need a degree in genetics and robotics.

AgFunder's founding partner Michael Dean capped off day two with exciting news that investment into Australia's agri-food technology has jumped by 83 percent.

Fresh statistics in

AgFunder's Agri-Food Tech Investing Report – 2019 reveal Australia's total investment is \$90.3 million.

"Australia is one of the good news stories of 2019, with record growth in agrifood tech investment," Mr Dean said.

"It is also pleasing to see startups from across the supply chain receiving investment."

"There is still much to do but it is very encouraging to see such robust year-on-year growth over the past three years."

Stay up to date with evokeAG 2021 event news by subscribing to news updates.

Contribute to the food, farm and future conversations by using the #evokeAG hashtag and follow evokeAG on Facebook, Twitter, LinkedIn and Instagram.

See you at evokeAG 2021 in Perth.



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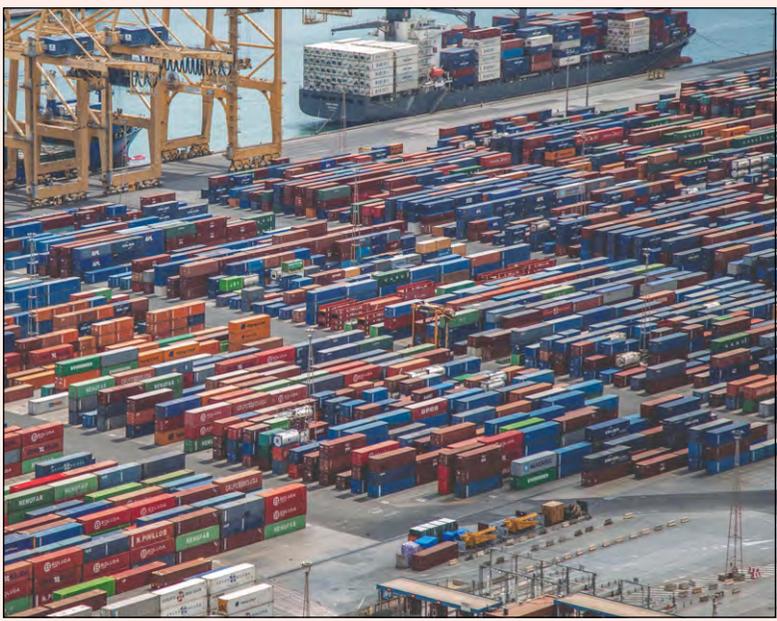


Photo: Tobias A Muller

Streamlined export legislation passes Parliament

THE passing of the Export Control Bill 2019 will improve the legislative framework and help increase market access for Australian exports.

Agriculture, fisheries and forestry exports are an economic powerhouse for Australia, expected to be worth about \$51 billion in 2019-20.

Minister for Agriculture David Littleproud said the new legislation would safeguard Australia's reputation as a reliable, high-quality source of exports.

"The government is committed to growing Australia's agricultural sector and market access through exports," he said.

"The streamlining of export legislation will support the export of a broader range of products produced by our farmers.

"The new Bill will become the central pillar of the new agricultural export framework.

"It will make the legislation easier to use while maintaining our commitment to meeting importing country requirements."

The Bill removes duplication and makes export provisions consistent across commodities where possible.

"Commodity specific export rules are currently being drafted to support the Bill and will be shared with stakeholders as they are developed," Minister Littleproud said.

"There is much to do before the new export legislation commences early next year and my department is continuing to work closely with exporters and trading partners."

Bulgaria reports two new bird flu outbreaks

BULGARIA'S food safety agency authorities have reported two new outbreaks of the highly pathogenic H5N8 bird flu in the southern part of the Balkan country.

One of the new outbreaks was found at a farm with more than 55,000 egg-laying hens in Trilistnik, near the city of Plovdiv.

The other outbreak was reported at a farm with

more than 11,000 ducks in Padarsko, also near Plovdiv.

All the hens and ducks at the two farms would be culled, the country's food agency said.

It said a 3km protection zone had been set around the farms and the movement of domestic, wild and other birds and has been banned within it, as has the sale of eggs and poultry.



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China's chicken chain comes unstuck amid chaos of virus

CHINA'S chicken farmers had been looking forward to a bumper year.

But an unprecedented lockdown on people and goods to curb the coronavirus outbreak has disrupted the short but intense poultry lifecycle, threatening output of meat just as the world's most populous country faces a massive pork shortfall.

China's poultry production expanded by 12 percent last year to 22.39 million tonnes, after farmers sought to plug the gap from the pork shortage caused by African swine fever that ravaged the domestic hog herd.

About half of China's chickens are raised by individual farmers involved in only one or two steps of the chicken chain, rather than integrated operations.

But that has made them vulnerable to the restrictions on movement and labour shortage resulting from Beijing's efforts to curb the spread of a new coronavirus that has killed more than 3200 people and infected around 95,000.

Many roads to villages across the country are still blocked, despite government efforts to ease problems for vital industries like food, hampering feed deliveries and movement of birds.

Some feed mills and

slaughterhouses are still shut, while others are only starting to reopen after extended holidays and operating below capacity.

That has upset the flow of a supply chain that starts with the sale of day-old chicks by hatcheries to breeding farms, continues with distribution of broiler chickens to growers, and ends in the slaughter of fattened birds, all in less than a year.

Rabobank senior analyst Pan Chenjun said: "Every step needs to work at the same pace, otherwise there will be an imbalance."

Pan Xingle, who raises chickens in Yi county in Hebei province for a slaughterhouse under contract, is still waiting to slaughter 16,000 birds that are already more than 50 days old.

Broilers used for cheap meat by fast-food chains and public canteens reach their maximum weight of 2.6kg in about 40 days.

But the slaughterhouse has only just reopened after an extended holiday and farmers are queuing to kill their chickens.

"I was told I'll need to wait for at least another 10 days," Pan said.

That means Pan won't be restocking his farm with new chicks for a while longer, hurting business for some of the 45 million breed-

ers that raise 'parent stock' around China.

Below cost

Prices for the day-old chicks sold by those breeders are currently below cost, ranging from 1.4 yuan to 2.5 yuan (about 20 to 35 US cents) per chick.

The average price last year was \$A1.50.

Zhang Yanguang, manager of breeding farm Beijing Lyvan Poultry Centre located in a village in the northwest of the capital, said even if he could sell his chicks, roads to the village are still blocked and trucks can neither go in nor out.

Worse, most of the slaughterhouses in the northeast and northwest of China are still shut so he can't get rid of unwanted birds either.

"The whole market is closed down," he said, estimating slaughter capacity is currently only running at about 30 percent.

If pressure on farms like Zhang's continues past this month, it could force some out of business, said Pan (the analyst), hitting the hatcheries further upstream that raise grandparent stock to produce the breeders.

"Then the hatcheries will have to destroy day-old chicks or eggs," she said.

With schools and many factories and restaurants still closed, lower production of

chicken and eggs is not yet a problem.

But once business returns, supplies could tighten, Pan said.

The effect is likely to be seen in the second and third quarters, an agriculture ministry official said recently.

Similar challenges are facing egg farmers who are unable to get fresh eggs to market nor replace their old hens.

Hatcheries are selling chicks really cheap, which could help farmers like Li Shunji from northern Shandong province who is selling his eggs at a loss because he no longer has access to big markets in Beijing and Tianjin.

But he still has worries.

As he waited to take delivery of a new batch of baby chicks, he worried about transport disruption.

"They are so fragile at the moment," he said.

"Moving them around might lead to their death, or reduce their productivity in future."

"But I can't do anything."

"I will just have to wait."

Pump as good as Arnold Schwarzenegger

THE Herd Group is an Australian-owned company supplying high-quality lamb, mutton and beef as well as a number of further-processed foods and smallgoods to both local and overseas markets.

Founded in 1951 and based in Geelong, Victoria, the company employs over 380 staff.

The company continually strives to excel in all it does and is committed to quality at every stage of processing.

As such, it only uses the best equipment to ensure best performance in all facets of the process.

When Graeme Spence of Hydro Innovations called by to see what Herd Group used for wastewater pumps, he met with engineering manager Trevor Egan.

Trevor was kind enough to describe his wastewater system to Graeme, pointing out the wastewater pumps were Gorman-Rupp, with some being in service for about 30 years.

"The pumps operate 24/7 - they may look like s**t, but they pump as good as Arnold Schwarzenegger," Trevor said.

The Herd Group pumps are part of Gor-

man-Rupp's 'Classic T' range of self-priming wastewater pumps, which have now been superseded by the Super T series.

The new Super T models are the same dimensionally and hydraulically as the line they replaced but have enhanced servicing and safety features according to Graeme.

Internal clearances can be adjusted in minutes without having to disconnect the pump from piping or without opening the pump, meaning pumps can maintain peak efficiencies for the life of the installation, delivering

energy savings to asset owners.

Gorman-Rupp pumps are predominantly used in the food process industry, particularly by companies that don't compromise on safety and reliability.

Because they are surface mounted, operators have easy access for monitoring and maintenance, and because they are cast, machined, assembled and tested in the US, reliability, performance and parts support are guaranteed.

For more information on Gorman-Rupp pumps, visit hydroinnovations.com.au



Waste abattoir pump.

Focus on poultry performance and nutrition at Alltech dinner

FOLLOWING the 2020 Australian Poultry Science Symposium, Alltech held a roundtable dinner attended by members of industry with presentations from three experts in poultry nutrition and performance.

Dr Bec Forder

Dr Bec Forder presented on promoting good gut health and the detrimental effects bacterial outbreaks can have.

- There is a need to continue to develop a detailed understanding of mucosal-bacterial interactions in poultry as a means to prevent and/or reduce pathogenic colonisation.

- We cannot ignore the significant effects of the maternal environment on progeny immune function and gastrointestinal development.

- Are breeder hens a new avenue to alter progeny gastrointestinal development towards an environment conducive to colonisation of favourable bacterial spp?

Dr Rebecca Delles

Dr Rebecca Delles discussed meat quality and the effects of different muscle myopathies.

- Wooden breast meat and other breast muscle myopathies are qual-

ity defects that reduce the amount of saleable meat, and with a rising global population the world must produce 60 percent more food by 2050 to avoid food insecurity. The cost of wooden breast is more than economic, it is societal issue.

- The cause of wooden breast is due, in part, to excessive hypertrophy of muscle fibres, insufficient blood supply and tissue oxygenation and subsequent cellular damage.

- Through the use of nutrigenomic technology, Woodsout reduced moderate/severe incidence of wooden breast and white striping myopathies by up to 33

percent and 47 percent, respectively.

Dr Tugrul Durali

Dr Tugrul Durali discussed the impact of mycotoxins on bird health.

- Mycotoxin contamination is unavoidable as every single sample Australia in 2019 was contaminated with at least one different mycotoxin.

- Carotenoids are very important antioxidants in poultry physiology as well as playing an important role to achieve desired egg yolk colour in layers and skin colour in corn-fed chicken. Their absorption is significantly affected by different mycotoxins with different modes of

action, so it is crucial to have a good mycotoxin mitigation program in egg-laying operations and in corn-fed chicken production.

- Climate change is challenging, our understanding of mycotoxins as fungi that produce important mycotoxins for animal health are adapting to climate change. As a result, we start seeing new mycotoxins, which are called emerging mycotoxins. The challenge is, we do not have enough local scientific research on this topic for Australian poultry industry to manage the risk effectively.



Dr Tugrul Durali, Dr Bec Forder and Dr Rebecca Delles

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APSS 2020 a holistic success

DESPITE the recent drought, bushfires and floods in Australia, as well as the international epidemic of coronavirus, the 31st Australian Poultry Science Symposium recorded its highest number of registrations to date. Even with several international visitors un-



Assoc Prof David Phalen from Sydney University and David Sherwood from EW Nutrition.

able to make this year's rendition of Australia's premier avian science conference due to travel restrictions imposed as a result of coronavirus, the event was regarded as a resounding success.

With an underpinning theme of 'a holistic approach to poultry production' the Sydney-based conference hosted a mix of national and international presenters who delivered industry-relevant content for producers.

Given the impact of the drought and subsequent bushfires in Australia, it was timely that the welcome reception, presented by Assoc Prof David

Phalen, looked at the impact these national disasters are having on native Australian animals and the University of Sydney's commitment to wildlife.

With the support of Sydney University, the Avian Reptile and Exotic Pet Hospital has been set up to care for sick and injured animals.

The AREPH is the only purpose-built university-run wildlife hospital in Australia and has over the past four years treated more than 4500 wildlife cases.

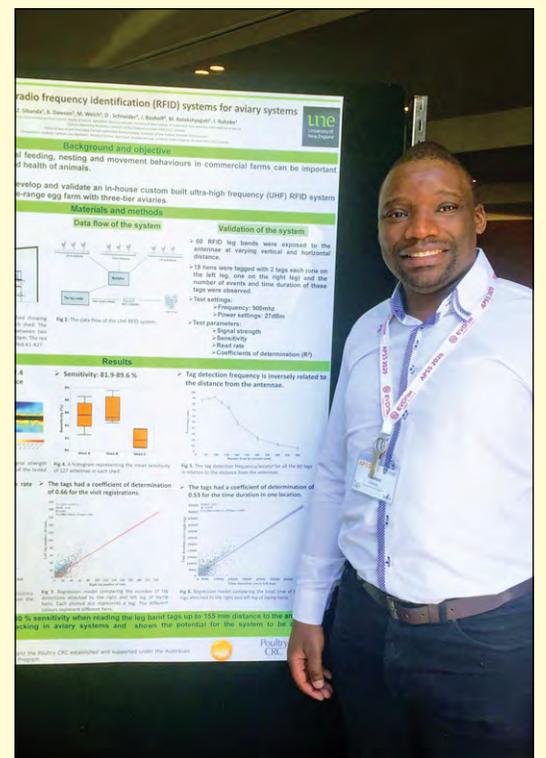
The welcome reception not only highlighted the work being done

by AREPH but it was also a fundraiser, with the initial donation being made by EW Nutrition who sponsored the welcome reception.

This year's opening address was delivered by Poultry Research Foundation president Judith O'Keefe who acknowledged long-term sponsors for their ongoing support.

"Looking back over the recent years, there is a sense of pride in what science has brought to industry, which is the key point of this event," she said.

Following yet another successful event, stay tuned for the dates of the 2021 conference.



Poster session winner Terence Zimazile Sibanda.

The benefits of measuring calcium digestibility from raw materials in broilers, meat breeders and layers

TO-date, poultry diets have been formulated to meet estimated requirements for total calcium, while frequently also maintaining a specified ratio of total calcium:available phosphorus (AvP).

In vegetable-based diets, limestone can contribute in excess of 50 percent and 90 percent of dietary calcium in broiler diets and laying hen diets, respectively.

In laying hens, it is known that limestone particle size can alter the availability of calcium for shell formation and bone mineralisation, and as a consequence, breed recommendations have included specifications for a minimum percentage coarse limestone grit >2mm in feed formulation.

More recent research in broilers has also shown that limestone particle size, as well as the source of limestone, could profoundly alter calcium digestibility, while simultaneously having significant effects on phosphorus digestibility and phytase efficacy.

In light of the recent studies that have documented effects of limestone quality on the digestibility of calcium and phosphorus, it was of interest to quantify differences in the quality of limestone used in commercial feedmills.

With this objective, our laboratory collected 255 limestone samples from feedmills in 16 different countries on the European continent.

Limestone samples were analysed for mineral content, geometric mean diameter and dynamic solubility at five, 15 and 30-minutes for samples with <1000µm GMD and at 30, 90 and 150 minutes for grit limestone with

GMD>1000 µm. While analysed calcium in limestone samples was in most cases high, there was large variation in the GMD particle size of either fine or grit limestone used in commercial feedmills.

The dynamic solubility results showed while there was an inverse correlation with GMD and solubility at all time points, limestone rock (geology) contributed significantly to differences in the solubilisation rates between different sources of limestone.

With consideration of the recent studies that have elucidated clear effects of limestone particle size and dynamic solubility on calcium and phosphorus utilisation, these large differences in the dynamic solubility rate arising from differences in the GMD particle size and geology of limestone samples used in commercial poultry feed mills can be expected to significantly alter the digestibility of calcium and phosphorus in practical diets fed to broilers and laying hens.

A further consequence of this is the ratio of digestible calcium:AvP supplied to the bird would vary between diets and/or feed mills, dependent on the quality of limestone used.

This highlights the current practice of formulating to total calcium or maintaining a fixed ratio of calcium:AvP in feed formulation is inaccurate and that there is a need to transition to a digestible calcium system in poultry feed formulation.

Introduction

Calcium and phosphorus are two minerals of great concern to poultry nutritionists as a result of the relatively large quantities needed in the diet, and the adverse effects on bone

formation, shell quality and overall performance when inadequate amounts of these minerals are supplied.

It is further difficult to discuss calcium supply in poultry diets without referring to phosphorus, since the dietary requirement of these two minerals has previously been shown to be interdependent.

Should plasma calcium or phosphorus concentrations decrease, synthesis of 1,25-dihydroxy cholecalciferol (1, 25(OH)2D3) increases and, in turn, promotes increased intestinal Ca absorption while renal excretion is decreased.

In broilers, when dietary calcium is increased, typically by increasing the inclusion of limestone, there is a progressive decrease in phosphorus digestibility.

The primary mechanism whereby this occurs has been thought to be directly, or via formation of calcium-phytate complexes that reduce the digestibility of phytate-bound phosphorus.

Since the utilisation of calcium and phosphorus is influenced by the concentration and digestibility of the other nutrients in the diet, common practice in broilers has been to maintain a ratio of calcium to available phosphorus when specifying requirements of calcium and phosphorus.

Conveniently, this ratio has been set at 2:1 Ca:AvP in broilers.

The obvious limitation of this approach is the interdependence of calcium and phosphorus homeostasis in the bird is driven by the amount and ratio of these nutrients provided at tissue level and hence by the ratio of digestible calcium:digestible phosphorus in the diet; and

not by the ratio of total calcium:AvP supplied in the diet.

In recent years, several research groups have shown calcium digestibility in broilers can vary dramatically depending on the calcium source provided, the solubility of limestone, as well as by the source of phytate and addition of phytase.

With the knowledge that the digestibility of total dietary calcium can be significantly altered by the aforementioned dietary factors, and that the form of calcium provided and absolute amount can alter phosphorus digestibility, the specification of calcium requirements for broilers as total calcium in the diet becomes obsolete, as does the adherence to a fixed ratio of total calcium:AvP.

The need to better understand how to predict variation in calcium digestibility, and the influence of calcium on phosphorus digestibility becomes even more critical when considering the high incidence of lameness and bone abnormalities observed in the industry, with over 1 percent of commercial broilers grown to heavy processing weights affected after five weeks of age.

A similar case can be made for commercial laying hens for which requirements for calcium are still specified on a total basis.

Particle size and solubility of limestone are known to influence the availability of calcium to the hen and can alter shell quality and bone ash.

Some authors also suggested the daily calcium requirement of laying hens to maintain eggshell quality should be determined based on the solubility characteristics of the limestone.

While breed nutrition recommendations for laying hens specify the supply of a portion of limestone as coarse limestone grit, potential differences in the solubility characteristics of that grit are not considered when formulating to meet the calcium demand of the hen.

This observation becomes increasingly important in the context of modern laying hens where, as a result of increasing length of production cycles, optimising the utilisation of dietary calcium sources as hens age is critical to meet demands for shell formation without compromising skeletal integrity and bird welfare.

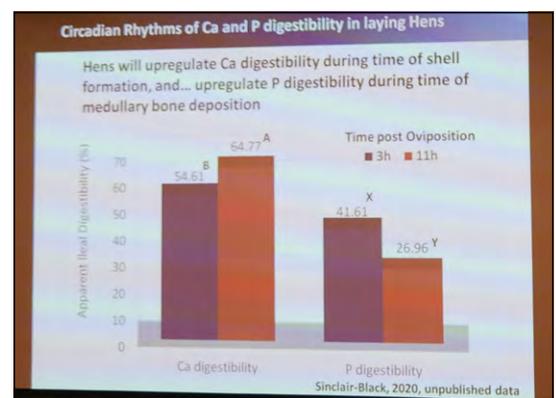
Variation in limestone quality and in-vitro assessment thereof

In vegetable-based broiler diets, limestone can contribute over 50 percent of the total dietary calcium supplied to broilers, and in excess of 90 percent of the calcium consumed by laying hens.

Given the previous observations by multiple research groups that limestone particle size and solubility can affect the utilisation of calcium by broilers and laying hens, as well as phosphorus digestibility and phytase efficacy in broilers, it was of interest to characterise the observed variation in particle size and solubility of limestones used in commercial feed production to quantify differences in limestone quality used in commercial poultry diets.

P.W. Plumstead, M. Sinclair-Black and C.R. Angel

To see the full report presented at APSS 2020 and published in the conference proceedings, please email ben@poultrynews.com.au



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