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AgriFutures Australia and Australian Chicken Meat Federation unveil a comprehensive workforce strategy.

# Australian chicken meat industry workforce development strategy unveiled with safety prize initiative

IN a joint effort to strengthen the future workforce of Australia's chicken meat industry, AgriFutures Australia, in collaboration with the Australian Chicken Meat Federation, has unveiled a comprehensive workforce strategy.

This initiative aims to cultivate a diverse workforce capable of supporting a prosperous and sustainable industry.

The strategy focuses on attracting new talent, identifying critical roles and establishing clear career pathways to promote higher levels of workforce entry and retention.

This includes introducing new training opportunities within the vocational and tertiary education sectors and providing opportunities for career development and mentorship within industry.

by **VERITY PRICE**
Deputy CEO

Skills shortages in the agricultural sector and regional communities have presented an ongoing challenge to the industry, but this strategy will set the path to alleviate these pressures.

The workforce strategy aims to tackle this by ensuring every individual involved in the industry benefits from the

☛ continued P2

# Sustainability insights at Farming Futures Expo

IN July, Poultry Hub Australia attended the 2024 University of New England Farming Futures Expo, an event that allowed us to engage with a diverse and enthusiastic audience.

From the moment we arrived on UNE's picturesque campus, the buzz of excitement was palpable, and we knew the expo would be a unique opportunity to connect with students, researchers and industry professionals.

Our day began early, as we set up our interactive booth in the SportUNE facilities alongside other exhibitors showcasing the latest in agricultural technology and innovation.

We were eager to share our insights and advancements in poultry science, highlighting sustainable practices and innovative techniques that could shape the future of the industry.

by **TAMSYN CROWLEY**
Director

The keynote address by Dr Emily Hawthorne set an inspiring tone for the day.

Her emphasis on the urgent need for sustainable solutions in agriculture resonated deeply with our mission at Poultry Hub Australia.

Throughout the day, our booth attracted a steady stream of visitors, particularly students eager to learn about poultry science and the broader poultry industry.

We engaged in lively discussions about the latest advancements in poultry farming, from improved breeding techniques to state-of-the-art feed management systems.

One of the highlights was interacting with university students participating in the event's youth segment.

Their curiosity and enthusiasm were contagious, and we enjoyed guiding them through mini-projects and activities designed to spark their interest in agricultural sciences.

It was rewarding to see the next generation so engaged and eager to explore careers in poultry science and agriculture.

The panel discussion on climate change and its impact on agriculture was another significant moment.

Listening to experts from UNE and industry leaders debate strategies for mitigating climate change effects on farming underscored the importance of our work.

We contributed to the dialogue, sharing insights on how sustainable poultry practices can play a vital role in reducing the agricultural sector's carbon footprint.

As the day progressed, the Farming Futures Innovation Awards ceremony added a festive atmosphere.

We were thrilled to see students recognised for their innovative contributions, particularly a team that developed a biodegradable alternative to plastic mulch.

Their work exemplified the kind of forward-thinking solutions that events such

☛ continued P2



The Poultry Hub Australia stand and attendees at the 2024 University of New England Farming Futures Expo held in Armidale, NSW in July.

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## Poultry Industry Calendar of Events

### 2024

**AUG 19-21** – USPOULTRY National Safety Conference for the Poultry Industry 2024, Florida, USA. https://www.uspoultry.org/programs/education/

**AUG 22-24** – Poultry and Livestock Expo 2024, Bangalore, India. https://iplexpo.com/

**SEP 12-15** – Aviana Madagascar, Madagascar, Africa. http://www.avianaafrica.com/madagascar/index.html

**OCT 16-17** – National Chicken Council Annual Conference 2024, Washington, USA. https://www.nationalchickencouncil.org/

**OCT 16-17** – Dutch Pork and Poultry Expo, Evenementenhal Hardenberg Netherlands. www.porkpoultryexpo.nl/

**OCT 22-23** – Poultry Hub Australia's Ideas Exchange 2024, Brisbane Queensland. https://www.poultryhub.org/ie2024

**OCT 28-29** – International Conference on Poultry Science, Lisbon Portugal. waset.org/poultry-science-conference-in-october-2024-in-lisbon

**NOV 12-15** – 28th Latin American Poultry Congress, Punta del Este Uruguay. ovum2024.uy/en/ovum2024-english/#pll_switcher

**NOV 12-15** – EuroTier 2024, Hanover Germany. www.eurotier.com

### 2025

**MAR 5** – 2025 NSW Poultry Industry Golf Day, Lakeside Golf Club Camden, NSW. Email: david.sherwood@ewnutrition.com

***How to supply event details:***
***Send all details to National Poultry Newspaper, PO Box 162, Wynnum Qld 4178, call 07 3286 1833 or email ads@collins.media***

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# Five years of progress with Egg Farmers of Australia

Egg Farmers of Australia

by **MELINDA HASHIMOTO**
CEO

JULY 2024 officially marked the end of my fifth year at the helm as chief executive officer of Egg Farmers of Australia.

While the industry has faced many challenges over this time, I am proud that our organisation has achieved much in the areas of biosecurity, food safety and animal welfare and in lobbying various governments as the voice of Australia's leading free range, barn laid and cage egg farmers.

Though in the past I have worked for various agriculture ministers at both a state and federal level, this five-year period has, for me personally, been a time of professional learning and growth.

Agriculture is a part of my identity.

And though I come from a rural background, I do not pretend to be 'off the land' these days.

Indeed, I confess I've been a 'townie' for quite a while now.

However, not living on a farm allows me the time – that our farmers don't have – to advocate for those who continue to work hard to produce a consistent, healthy and sustainable supply of eggs for the nation.

When I review the issues impacting Aussie egg farmers over the past five years, I've looked at them through the lens of maintaining the 'business of agricultural' as a strong economic base for our country.

As I pass half a decade with EFA, I have a lot to be thankful for.

The first being the support of the board of directors.

While many faces have come and gone throughout the years, it is pleasing to work with such a dedicated group of egg-industry stalwarts.

In my time, board members have included:

- Bede Burke, NSW
- John Coward, Queensland
- Ian Wilson, NSW
- Tony Nesci, Victoria
- Dion Andary, South Australia
- Brian Ahmed, Victoria
- Meg Parkinson, Victoria
- Greg Quinn, Queensland
- Darren Letton, South Australia
- Andy Crocker, Queensland.

Second, I am fortunate to be working with the fantastic team at EFA.

This group of people offer a wide range of skills, allowing me to successfully carry out the task of overseeing Egg Farmers of Australia.

As such, I would like to thank the staff who have supported me since my commencement in 2019.

Including first administration officer Karen Farrell, our recently welcomed Kirsty Boswood as part-time admin officer, EFA's organisation coordinator and company secretary Kylie Jackson and our communications consultant Christopher Lawson from Lawson and King, who has assisted Egg Farmers of Australia with its corporate messaging since 2020.

This team has provided a great deal of insight and support, which benefits egg farmers across Australia.

I further appreciate and give thanks for the work of our colleagues at Australian Eggs, the industry's research and development arm.

Finally, I am particularly proud of the progress that Egg Farmers of Australia has made over the past five years, listed below.

Thank you for your continued support, I sincerely look forward to servicing our Australian egg farmers for many years to come.

Our achievements over the past years include:

- Finalising national level engagement on the Australian Animal Welfare Standards and Guidelines for Poultry
- Submissions to government on national reviews that impact the egg industry
- Increased membership across small, medium and large egg farmers, corporate members, nutritionists, researchers and vets
- Introduction of egg industry awards acknowledging the work of EFA members who give back to the industry
- Completion of EFA's five-year constitutional review
- Development and implementation of EFA's five-year strategic plan
- Developing an avian influenza checklist for farmers
- Coordination with government officials on salmonella enteritidis awareness work
- Providing information to backyard poultry owners on general biosecurity
- Undertaking Animal Health Australia tasks on behalf of Australian Eggs.

We will persist in fighting for improvements in biosecurity work, such as the removal of exemptions for egg stamping and increasing awareness of traceability tools, and we will continue to be involved in disease responses to assist all impacted egg farmers.

The author with EFA organisation coordinator and company secretary Kylie Jackson.

# Australian poultry industry workforce strategy unveiled

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proposed workstreams to support better attraction and retention of the poultry labour force.

With Australians consuming over 50kg of chicken meat annually, the strategy highlights the need for a more productive, dynamic and competitive sector, driven by investments in human capital.

Coinciding with the launch of this new strategy, ACMF and the Australian Chicken Growers Council, with the support of ProTen, are launching the inaugural Safety Smart Award program, dedicated to recognising leading safety initiatives in the broiler chicken farming sector.

This program aims to:

- Highlight excellent safety practices and culture
- Build safety leadership capabilities within the sector
- Promote a proactive approach to safety management.

The initiative seeks to create a safer working environment and contribute to overall industry safety standards.

A prize of $5000 will be awarded to the best safety initiative, as determined by a panel of industry representatives.

Applications for the Safety Smart Award program are now open and will close on Friday September 20, 2024.

For more information on the Australian Chicken Meat Workforce Strategy, visit 'Building people capability and a diverse and sustainable workforce' by scanning the QR code below, and for more information on the ProTen Safety Smart Award, scan the relevant QR code.

Scan for the Australian Chicken Meat Strategy.

Scan for the ProTen Safety Smart Award.

# Sustainability insights at Farming Futures Expo

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as the Farming Futures Expo aims to promote.

Attending this event was an enriching experience for Poultry Hub Australia.

We left with a renewed sense of purpose and inspiration, having connected with a community dedicated to advancing sustainable agriculture.

The enthusiasm and engagement we witnessed reaffirmed our commitment to fostering innovation and education in poultry science.

We look forward to continuing our collaboration with UNE and contributing to the future of sustainable farming.

Finally, I would like to announce that our premier annual conference Ideas Exchange 2024 is now open for registration.

Ideas Exchange 2024 will be held on October 22-23 at the View Brisbane in Queensland.

The conference is a great avenue for industry personnel and researchers to come together and develop relationships and collaborations that benefit the entire industry.

This year's theme will focus on the topic of 'Biosecurity: strengthening preparedness at all levels'.

For details on how to register, head to poultryhub.org or contact us directly at poultryhub@une.edu.au

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# Centre for Disease Preparedness expert on bird flu

Dr Frank Wong

Wild birds can spread bird flu to farmed poultry, where it can mutate to more pathogenic strains. Photo: RDNE Stock Project

CSIRO's Australian Centre for Disease Preparedness in Geelong, Victoria.

THE world is currently experiencing a bird flu 'panzootic' – a pandemic of birds.

This devastating global outbreak is being caused by a particular strain of highly pathogenic avian influenza virus called H5N1 clade 2.3.4.4b.

It is affecting wild birds and poultry, and some mammals, on every continent except Australia.

Meanwhile, three separate strains of bird flu – H7N3, H7N9 and H7N8 – have been detected across poultry farms in Australia.

As Australia's national reference laboratory, Commonwealth Scientific and Industrial Research Organisation's Australian Centre for Disease Preparedness is playing a key role in testing, determining virus strains and keeping Australian authorities informed.

Here, ACDP senior research scientist and World Organisation for Animal Health Reference Laboratory expert in avian influenza Dr Frank Wong answers pertinent questions on the disease.

What's the difference between low pathogenic and highly pathogenic bird flu?

"The virus strains are classified as either low pathogenic avian influenza, LPAI, or high pathogenic avian influenza, HPAI, viruses," Dr Wong said.

"LPAI infections in birds may cause only mild illness or no disease at all.

"But HPAI infections in poultry can cause outbreaks of severe disease, resulting in many sick and dead birds in affected farms.

"Some H7 and H5 strains start out as low pathogenic in wild birds, but they can become highly pathogenic through virus mutation in infected chicken flocks."

How much of a risk does highly pathogenic avian influenza virus pose to people?

"Bird flu is basically a virus that affects birds with occasional spill over to other animal species," he said.

"There have been rare cases when people have caught the virus, usually from working directly with the infected poultry or affected farms.

"As it is still a bird-adapted virus, we normally do not see avian influenza being transmitted from person to person or mammal to mammal.

"The risk to people is still considered low at this time."

Has Australia ever had an outbreak of bird flu before now?

"Australia has had previous outbreaks of the disease HPAI in poultry, including in 2012, 2013 and again in 2020," he said.

"In each instance, the outbreaks were quickly contained and the strain causing the highly pathogenic outbreak was eradicated.

"Australia's previous outbreaks were of H7 bird flu – we've never had an outbreak of H5N1 here, which is the strain causing havoc overseas."

What strain of bird flu is causing Australia's current outbreaks?

"There are currently two states and one territory affected by bird flu outbreaks," Dr Wong said.

"While there are three separate strains involved, they are all H7 strains of the virus.

"Outbreaks in Victoria have been caused by H7N3 HPAI impacting egg farms in the Meredith region and H7N9 HPAI in one farm in the Terang region.

"The HPAI outbreaks affecting farmed chickens in the Hawkesbury region of NSW and in the ACT have been caused by the H7N8 strain."

What strain of bird flu is causing the devastating outbreaks around the world?

"The bird flu strain causing havoc overseas is known as highly pathogenic H5N1 clade 2.3.4.4b," he said.

"It emerged sometime in 2020 and has spread to every continent except Australia, affecting millions of wild birds and domestic poultry.

"This virus has even killed wild birds and marine mammals in Antarctica."

What is different about this H5N1 strain?

"Clade 2.3.4.4b H5N1 has picked up the ability to infect a much wider variety of bird species than other HPAI strains previously," he said.

"Scientists have also noted that wherever H5N1 spreads, it has mixed with local bird flu strains.

"This seems to have allowed it to adapt to new environments and may explain its ability to infect many new bird species.

"It has also spilled over to several mammal species, such as foxes, and marine mammals, such as sea lions and elephant seals, and on rare occasions it has spilled over into cats and dogs.

"It was reported in farmed minks and fur farms in Europe and, since March this year, the virus was detected in dairy cows for the first time in the US."

What is the risk that H5N1 will reach Australia?

"The main hosts that carry bird flu viruses over long distances are migratory ducks and geese," Dr Wong said.

"As Australia isn't in the flyways of these migrations, the risk of H5N1 reaching Australia is relatively low.

"However, the risk has slightly increased because of H5N1's ability to infect additional species of wild birds.

"This increases the chance of introduction through regional or bridging species."

What is CSIRO's Australian Centre for Disease Preparedness in Geelong doing to prepare for a possible incursion of H5N1?

"We assist with Australia's surveillance efforts and conduct research to characterise the virus to understand it better," he said.

"We're helping keep track of bird flu and which strains are spreading through poultry and wild birds not only in Australia but in our region and globally.

"Australian state and territory laboratories rely on ACDP to conduct testing on bird samples to confirm the presence of avian influenza.

"We then do genetic sequencing of the virus and use this information to identify the exact strain and understand if and how it is changing.

"This way we know if the virus is a local virus already present within Australian wild birds or whether it could be a strain introduced from overseas.

"We then provide this information and advice to authorities and animal health working groups to support them in making decisions for responding to outbreaks."

In his role as the World Organisation for Animal Health reference expert, Dr Wong meets with other avian influenza reference laboratory experts and they share information about the circulating strains around the world and any new spillover events, such as the H5N1 infections of dairy cattle in the US earlier this year.

"This work has also helped us be as ready as we can be with diagnostic capabilities and response advice," he said.

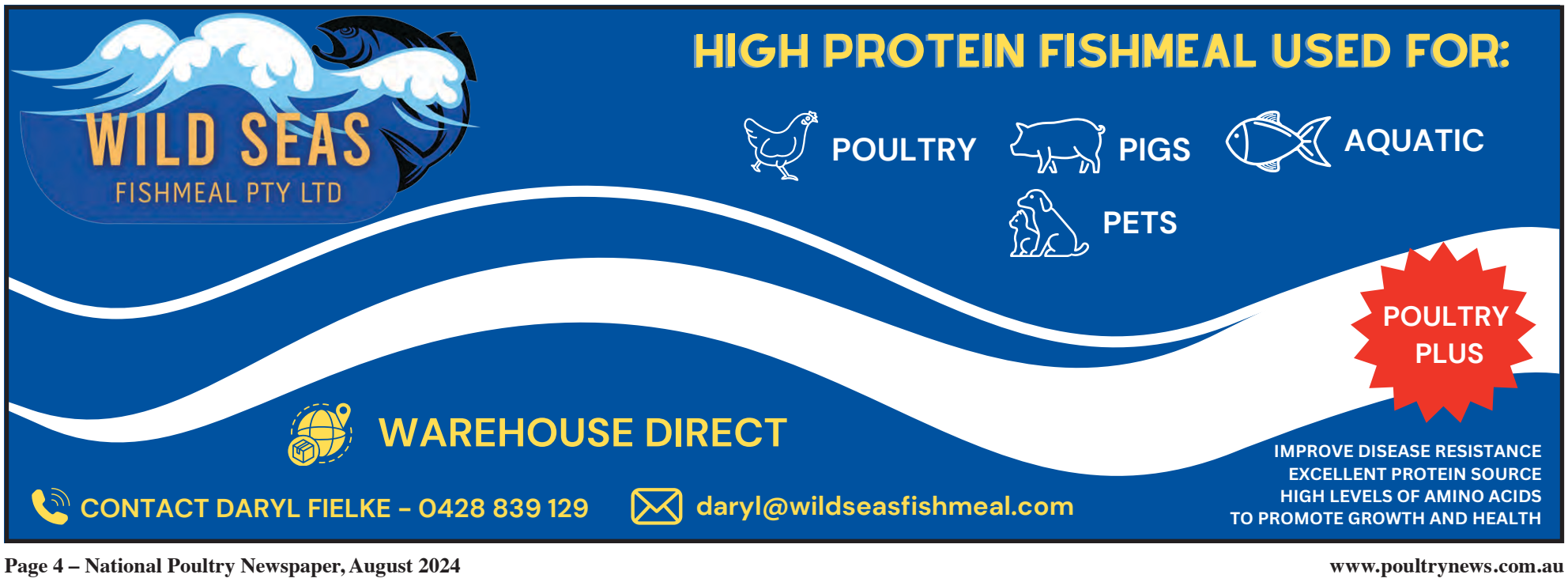
For more information on the current disease situation, visit outbreak.gov.au.

This site has links to state and territory specific details, and information about how to protect your birds.

Scan the QR code to read more about ACDP's research on bird flu dynamics in Australia.

**CSIRO**

Scan for ACDP's research on bird flu dynamics in Australia.

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# Ducks always in my sights

Classic crested ducks in Bali are cute as.

Lining the ducks up in Ubud.

Water and ducks, a match made in rice paddy heaven.

Now many years beyond duck shooting with a gun, the author recently used his phone to 'shoot' this pair of wood ducks at a local lake, where he delights in watching waterbirds peacefully and safely at play.

Tinned roast duck anyone?

The author enjoyed his bathroom vantage point to spy on a Malaysian roast duck cookhouse.

Cant Comment

by **BRENDON CANT**

DUCKS have fascinated me since I was a young boy, when helping Dad kill, pluck and gut our Muscovies.

I confess, while I never helped Mum cook them, I certainly helped eat them.

When it came to eating ducks, out of bounds in our backyard were a few random colourful characters known as Khaki Campbells.

More or less pets and valued as snail snatchers, they weren't up to roasting standard, so were reprieved from visiting the bloodied chopping block – a jarrah stump with two strategically spaced nails.

The KCs did lay plenty of eggs though and I know these were Mum's favourites when it came to cake baking.

Not wishing to be sexist in any way, I admit to always finding the drakes rather fascinating.

The big white and sometimes pied Muscovy drakes were ultra-masculine, waddling around their pen or yard as though it was their rightful kingdom.

And the Khaki Campbell drakes were often very beautifully coloured, making their many female partners look a little colourless, which is not uncommon in the world of dimorphic birds.

Also back in the day, I enjoyed joining Dad and his friends on their duck shooting trips.

Especially on open day once a year, when we'd all gather lakeside with a spirit of anticipation and camaraderie.

Black and teal ducks were the favoured target species, and they were tasty, as the shooters aimed to reach their government-gazetted bag limits.

The other wild duck I likewise acquired a taste for was wood duck, or maned goose.

These petite, plump and colourful birds would congregate mostly on farm dams, but also enjoyed lake life when the season was right.

With a well-developed taste for grain, they remain a common sight today in and around cattle feedlots.

Of course in Asia, ducks are not only plentiful in rice paddies but also prolifically plated up.

Roast duck is so delicious and is probably, alongside suckling pig, my preferred protein pick when travelling in Asia.

Late last year, while visiting Georgetown, Penang in Malaysia, I enjoyed roast duck when dining out.

Though most memorable, and I admit almost voyeuristic, was watching a laneway roast-duck cookhouse, which happened to be located – tin shed and all – outside and below my bathroom window.

Watching the comings and goings through a gap in the wooden shutters was entertainment in and of itself.

Prior to the ducks being hung streetside for all to see, I believe this was the order of the day.

Fattened ducks were killed, plucked, eviscerated and rinsed thoroughly with water.

Air was pumped under the skin through the neck cavity to separate the skin from the fat.

The duck was then blanched in boiling water for two to three minutes before being hung up to dry.

However, when stopping at Ubud, Bali in Indonesia this July, I didn't happen to dine out on duck.

While there was no lack of wont, I was agreeably holidaying with my vegetarian partner for a few days, on completion of a week-long yoga retreat she'd hosted and taught for 20 plus Aussies.

I always enjoy vegetarian meals and in Bali, as always, we shared some exceptional food.

On our last day there, we managed to meander through Ubud's Tegallalang Rice Terraces, where I spotted some very happy ducks waddling their way through the rice paddies.

The rice paddies and their innovative irrigation system – known as the subak – is the traditional Balinese cooperative irrigation system, apparently passed down by revered holy man Rsi Markandeya from the eighth century.

While I didn't have the opportunity along the rambling ridge walk to check the chalkboard menus out at the little warungs – small family-owned eating houses – I assume duck would have been listed on a few.

Alas, not for my tastebuds this trip.

Perhaps the next time I retreat to Ubud for all the pleasures that a restful energising stay in Bali has to offer.

Namaste.

# Farmsafe Australia's 'In safe hands' campaign

FOLLOWING National Farm Safety Week, Farmsafe Australia's 'In Safe Hands' campaign extends the regular work, health and safety conversation beyond physical safety to address the role of wellbeing in our capacity to make safe decisions on farm.

Recognising the unique challenges faced by farmers, their families and the broader farm workforce, the campaign aims to ensure that farmers know vital practical support is available to them.

Farmsafe Australia chair Felicity Richards emphasises the holistic approach of the 'In safe hands' campaign.

"Farm safety extends beyond seat belts and helmets – it encompasses the mental wellbeing of our farmers, their families and the workforce," Ms Richards said.

"By normalising talking about what we are going through and reaching out when we are struggling, we provide a safe space for workers through the ups and downs of farm life.

"This is what it looks like to keep our workers in safe hands."

Farming can be mentally and emotionally demanding, and the isolation of rural life can contribute to risks that are not as easily seen and assessed, the way physical risks might be.

The 'In safe hands' campaign aims to raise awareness about mental health challenges, reduce the stigma associated with talking about these issues and provide tangible support to help farmers and their families navigate stress, anxiety and other mental health concerns.

The campaign follows Victorian dryland broadacre farmer, well-known industry advocate and National Farmers' Federation president David Jochinke as he discusses the importance of prioritising more than only the physical health of his workers and community.

For Mr Jochinke, safety isn't simply a conversation, it's taking action to create a culture where workers go home in the same, if not better, condition they arrived in.

He acknowledged that making a safer environment to operate in includes creating a space that is respectful and allows for individuals to feel safe being themselves.

This topic in the campaign also explores mental wellbeing and the impact that each of us can make by checking in on each other and cultivating space for deeper conversations about how we are coping with the challenges that farm life can bring.

Farmers often put the needs of their land and livestock above their own needs, but their own wellbeing is equally vital.

'In safe hands' encourages individuals to reach out, seek support and prioritise their mental wellbeing instead of pushing through.

The campaign encourages open conversation, promotes simple strategies for individual wellbeing and provides networks and resources for farmers, family members and the farm workforce.

By acknowledging and addressing mental health and wellbeing, Farmsafe Australia aims to foster a resilient farming community where everyone is supported.

National Farmers' Federation president David Jochinke discusses the importance of prioritising the overall health of his workers and community.

# EchoStorm venturi aerator solves Craig Mostyn Group issues

CRAIG Mostyn Group is one of Australia's leading diversified food and agribusiness companies.

Established in 1923, Craig Mostyn Group is now Western Australia's largest vertically integrated pork, lamb and beef business.

It also has seafood operations that include three abalone farms and multiple sites across Tasmania.

Its protein rendering unit Talloman is a core division of Craig Mostyn Group, so when it started having issues with a wastewater treatment pond, plant manager Carlos Mendes went looking for a solution.

**The issue**

The EchoStorm venturi aerator from Gorman-Rupp Pumps was recommended and Mr Mendes contacted Hydro Innovations – the Australian distributor – for a solution.

He wanted a reduction in biochemical oxygen demand, chemical oxygen demand and ammonia, and also a solution to a troublesome blue-green algae issue.

Adding dissolved oxygen to aerobic bacteria allows organic compounds in wastewater to be broken down quickly, preventing it from becoming septic and odorous.

The addition of dissolved oxygen allows these organic compounds to be converted into non-polluting compounds.

**The solution**

Based on the size of the pond, the inflow rate and water analysis provided, Hydro Innovations recommended a 100mm EchoStorm system.

This system is comprised of a Gorman-Rupp U4B60S-B self-priming centrifugal pump with 15kW motor 'powering' a Gorman-Rupp V4A EchoStorm venturi aerator.

The EchoStorm is a static venturi aeration device that is installed on the discharge side of a Gorman-Rupp self-priming centrifugal pump to introduce dissolved oxygen into the liquid being pumped.

With no moving parts, the EchoStorm is an extremely reliable device, with only routine maintenance of the Gorman-Rupp pump required.

The simplicity of the system makes it easy to install, operate and maintain.

Because of its multi-vane impeller and 'straight-in' suction design, the U4A60S-B is the most efficient 100mm self-priming effluent pump on the market today, making it a good choice for keeping power consumption of the system low.

It is also capable of passing a 20.6mm solid and operating on suction lifts up to 6.1m.

The pump draws in water from the lagoon then pumps it at pressure through the EchoStorm unit, which draws in atmospheric air, mixes it with the water and delivers it back to the lagoon.

The unit not only 'saturates' the water with dissolved oxygen but also 'conditions' the flow, breaking down organic matter into smaller particles, allowing for enhanced organics reduction.

This conditioning effect also ruptures the buoyancy vacuoles within blue-green algae, causing it to sink, hence depriving it of the sunlight and carbon dioxide required for growth.

Mr Mendes and the Talloman evaluation team liked the idea of the equipment being mounted on the bank of the pond rather than floating in the middle of it and could see the ongoing benefits of easier access and the maintenance advantages of the system.

As a safety-first company, the team also saw the system as being much safer for operators than the other systems they had seen.

However, as the technology was relatively new to wastewater treatment in Australia, Mr Mendes was cautious in his evaluation of the results the system could achieve moving forward.

Yet Hydro Innovations was confident of the success of the unit, offering a standard five-year warranty on the pump as well as a money back guarantee if the unit failed to deliver the promised outcomes.

Happy with this arrangement, the division proceeded with the purchase.

**The results**

The Talloman staff did an excellent job of setting the unit up to exact specifications, though wanted to be sure the investment was a sound one.

To this end, Mr Mendes had the progress of the EchoStorm tracked by measuring the total of all taxa from day one.

When the unit was installed in March, the total taxa measured 217,000.

When the last reading was taken in May, the tracking was called off as the score was down to 6630 – a reduction of 97 percent.

Needless to say, the Talloman team was happy with the results.

The Talloman staff have also been pleased at how easy the unit is to access for monitoring and maintaining.

The EchoStorm aerator units are available in sizes from 50mm through to 150mm, though multiple units can be used to cater for larger requirements.

When the application calls for even high levels of oxygen, much larger and even more efficient pumps can be utilised, each providing flow to two, three, four or even five EchoStorm venturi aerators.

The productivity of these pumps drives the standard oxygen transfer efficiency up further too.

The use of multiple EchoStorm units also enhances mixing and virtually eliminates dead spots that are often left by competing technologies.

EchoStorm units are so versatile – they can draw water from any level and any part in the water source and similarly discharge it at any level and part.

This gives the asset owner numerous options for mixing or creating different treatment zones.

Venturi aerators are used not only for treating food process wastewater but also for treating municipal wastewater, mine water and for lake destratification.

More information on venturi aerators can be obtained from Hydro Innovations at info@hydroinnovations.com.au

The EchoStorm venturi aerator was the solution, supplied by Hydro Innovations.


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The virus is mostly spread by wild birds, particularly ducks, contaminating food or water supplies and remains a biosecurity threat.

# Millions invested in national avian influenza preparation

THE Albanese Government is investing almost $7 million, as it continues to lead the response to the threat posed by a potential incursion of H5 high pathogenicity avian influenza.

This strain has caused significant deaths of poultry, wild birds and wild mammals overseas and is not the same strain causing the current H7 HPAI outbreaks in Australia.

Outgoing Minister for Agriculture, Fisheries and Forestry Murray Watt said Australia was the last continent to remain free of the H5 strain.

"The strength of our national biosecurity system and Australia's geographic isolation has kept us free from H5 HPAI, which is currently having a major impact across the globe," Minister Watt said.

"But we cannot rest on our laurels.

"The arrival of migratory birds from areas where H5 HPAI is present – particularly as spring approaches – means we face a constant risk that is outside of our control.

"We can't stop the natural migration patterns of wild birds that may be sick, but we can prepare ourselves if that does occur.

"That is why we are investing $6.9 million in enhanced capability to detect and respond to avian influenza in wildlife."

This money includes:

• $2.2 million for the Wildlife Health Australia One Health Surveillance Initiative

• $1.95 million has been granted to Animal Health Australia to support the national response capability for avian influenza in poultry, including investigating the potential of commercial avian influenza vaccines for use in Australia

• $1.1 million to extend the National Avian Influenza Wild Bird Surveillance Program for a further four years

• $800,000 will be invested in communication with stakeholders, industry and the general public to strengthen awareness and understanding of Australia's biosecurity measures and preparedness

• $580,000 to support early detection and response capability for H5 HPAI in wildlife

• $200,000 will be invested in analysis to quantify the location, structure, biosecurity, routine husbandry practices and movement patterns of Australia's commercial poultry industries

• $70,000 will be invested in work to better understand the link between the presence of H7 low pathogenicity avian influenza in Australian wild birds and the outbreaks of H7 HPAI in Australian poultry.

Prior to the appointment of Minister Collins, Minister Watt said the Department of Agriculture, Fisheries and Forestry continued to undertake a national coordination and leadership role for H5 HPAI preparedness.

"There has been a multi-faceted response across governments, other agencies and industry, led by the team at DAFF, as we work to mitigate the impact that any H5 high pathogenicity avian influenza incursion could have," he said.

"We are also working with affected jurisdictions and industry to respond to the H7 high pathogenicity avian influenza outbreaks in Australia."

**Background**

• Avian influenza is an infectious disease of poultry and occurs worldwide

• More than 400 bird species are susceptible to avian influenza

• The virus is mostly spread by wild birds, particularly ducks, contaminating food or water supplies – for this reason, the disease remains a biosecurity threat

• Avian influenza can also spread by the movement of eggs, birds, people, vehicles and equipment between farms, and by clothing, footwear, aerosols, water, feed, litter, biting insects and vermin

• Eggs and poultry meat are safe to eat provided they are handled and cooked according to safe food handling practices

• There is no connection between these detections of H7 HPAI strains and the previous case of H5N1 avian influenza in a person in Victoria who recently returned from travel overseas where H5N1 occurs

• Importantly these H7 HPAI strains are also not the same as the H5 HPAI strain that is causing mass poultry and wildlife mortalities overseas

• State and territory agriculture departments coordinate the on-the-ground response activities in their jurisdiction, which include disease investigations, tracing, implementing movement restrictions, destruction and disposal.

For more information about avian influenza, visit agriculture.gov.au/birdflu

Visit outbreak.gov.au for more information about the H7 HPAI response.

Funding supports the early detection and response capability for H5 HPAI in wildlife, and the National Avian Influenza Wild Bird Surveillance Program has been extended for a further four years.

We can't stop the natural migration patterns of wild birds that may be sick, but we can prepare ourselves if that does occur.

# Guidelines central to on-farm emergency management plans

THE Australian poultry industry is no stranger to exotic and emergency animal diseases and at the centre of industry concerns is the threat of such diseases becoming more prevalent.

The rapid expansion of free range poultry production, coupled with the increasing popularity of hobby farmers and smaller niche operators with limited biosecurity knowledge and the increasing trend towards highly intensive commercial production, has increased the risk of a major EAD incursion.

Conscious of this and recognising that emergency disease mitigation and management is a cross-industry priority, the chicken meat and egg industries invested in the development of systems and materials to improve preparedness in the event of an outbreak in either industry.

During an EAD outbreak, a rapid and coordinated response involving all industry stakeholders is required to prevent the disease from spreading to neighbouring farms and minimise potential risks to public health and the environment, particularly groundwater and air.

A jointly funded project by AgriFutures Australia and Australian Eggs, with in-kind support from Primary Industries and Regions South Australia, developed guidelines and management tools for producers to use when formulating on-farm emergency management plans.

Project lead Dr Rod Jenner said, "Disposal of large volumes of biomass in the form of carcasses, litter and feed creates significant biosecurity, environmental and logistical issues for those charged with managing the operation."

"Undertaking pre-emergency planning and identifying all the options available for a particular property can significantly improve response time to an EAD outbreak, thus enabling a more rapid business recovery," Dr Jenner said.

Adding that the Australian Veterinary Emergency Plan recommendations for pre-planning of disposal of animal carcasses, materials, equipment, products and byproducts following an EAD or mass mortality event have been actioned by the chicken meat and egg industries, in part by way of the project.

"What we have done through the project is to develop the systems and plans needed to meet Ausvetplan recommendations," he said.

"Processors and farmers now have the tools required to fulfil their biosecurity and environmental obligations under the different state legislations, and the tools provided will enable farmers to identify the most appropriate disposal methods – either on or off farm – for a non-emergency mass mortality incident."

**Development of industry guidelines**

To explore the availability of and gaps in resources necessary for an on-farm preparedness plan, the team created a hypothetical scenario of an EAD outbreak in a highly intensive commercial broiler farming region.

"The scenario, including total calculated disposal, was presented to the Environmental Protection Authority, geographic information systems specialists at PIRSA and the Australian Chicken Growers' Council to get their insights and knowledge of disposal of carcasses and contaminated material," Dr Jenner said.

The next step involved the research team collating the regulatory requirements and resources available to help producers evaluate opportunities and identify potential limitations of on-farm disposal options.

There is significant activity around EAD preparation within state agriculture departments and widespread support from key stakeholders to develop mass disposal plans, yet there is little coordination between state departments, industry and other key stakeholders in preparing for EAD responses.

"Current resources are government driven and not necessarily developed with industry," he said.

"Industry contribution and engagement is a strong yet underutilised resource.

"The incentive for poultry industries to plan for EAD outbreaks needs to be promoted to all farmers, including those not contracted to processors or members of industry associations."

While composting carcasses and biomass is a viable option in many scenarios, composting large volumes of biomass requires specific skills and resources – something the team identified as an industry gap.

The team undertook an extensive literature review of global composting processes and procedures and, from this review, guidelines were developed for emergency poultry mass mortality composting.

"These guidelines form the basis of and are key to investigating the feasibility of on-farm composting as part of an on-farm emergency mass disposal preparedness plan," Dr Jenner said.

"The tools developed – a biomass calculation tool and a decision questionnaire – enable farmers to self-assess their property and develop a report that outlines available options for disposal of large volume mass mortalities on or off their property.

"It will also help farmers assess disposal options for an EAD outbreak, resulting in more efficient responses."


The biomass calculation tool and a decision questionnaire will enable farmers to self-assess their property as to mass mortality disposal.

Turned windrows or piles. Photos: J Biala, University of Queensland

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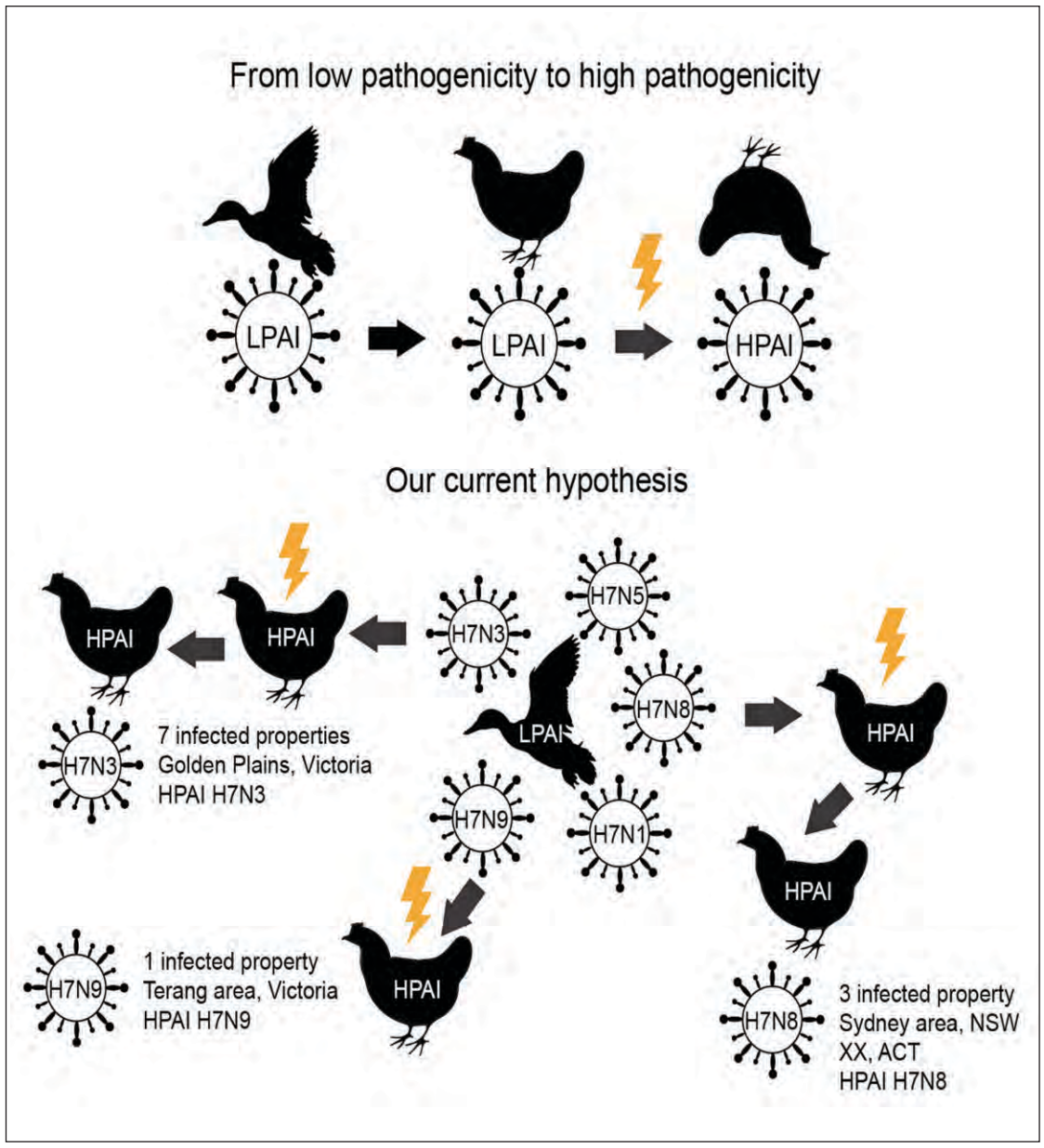


From low pathogenicity to high pathogenicity. Graph by the author.


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# Avian influenza update

THE highly pathogenic avian influenza strain H5N1 is causing an animal pandemic, or panzootic, around the world, with millions of wild birds, mammals, poultry and livestock now affected.

Australia, on the other hand, is experiencing something different.

University of Melbourne Doherty Institute and Centre for Pathogen Genomics senior research fellow, with an ongoing honorary position at WHO Collaborating Centre for Reference and Research on Influenza, Dr Michelle Wille explains why.

At the time of writing, various HPAI strains (H7N3, H7N9, H7N8) had been reported in eight poultry farms in Victoria, including Terang and Golden Plains Shire, in two in the Greater Sydney Basin in NSW and in one in ACT.

The seven premises in the Golden Plains Shire were infected with the same strain (H7N3), while the property near Terang was epidemiologically linked, it was infected with a different strain (H7N9).

A third strain (H7N8), first detected in NSW, was also found in the ACT.

All of this has occurred amid growing concerns about the arrival of an overseas strain of HPAI H5N1, which is causing a global panzootic and requires a different risk and response strategy compared to our current HPAI H7 outbreaks.

Oceania is the only part of the world that remains free from HPAI H5N1.

**HPAI vs LPAI, H7 vs N5 – what does it all mean?**

There are many avian influenza viruses – some common, some rare, some lethal, some benign, some exclusively in seagulls and some found in a huge diversity of birds.

To address this, we classify these viruses by features of the virus (called subtypes) and disease severity (pathogenicity).

The most common viruses are called 'low pathogenicity avian influenza' because they do not cause disease in wild birds.

They are found in wild birds globally, including Australia, and comprise 16 HA and nine NA subtypes.

The different subtypes refer to the diversity of proteins on the surface of the virus called the HA and the NA, and can mix and match, for example H7N9, H7N8.

Within the H5 subtype, we may also refer to genetic clades, such as clade 2.3.4.4b, and these genetic clades are somewhat similar to SARS-CoV-2 variants.

In contrast, high pathogenicity avian influenza viruses are lethal and make wild birds and poultry very sick.

These HPAI viruses evolve when subtypes H5 and H7 infect poultry and undergo genetic changes, making the viruses more lethal.

This is exactly what has occurred in Australia – 1 LPAI H7 viruses, which do not cause disease, jumped from wild birds to poultry, where they evolved into HPAI and caused outbreaks.

This is not the first time an HPAI outbreak has happened in Australia.

Unlike the HPAI H5N1, which is not present in Australia, this country has faced a number of HPAI H7 outbreaks, the most recent being HPAI H7N7 outbreak in Victoria in 2020.

To control the outbreak, movement and control zones have been set up, in both Victoria and NSW.

Poultry must now be kept indoors in certain areas to prevent another virus jump event.

Farms that have tested positive are being depopulated to stop virus spread and further evolution, and importantly, to prevent the HPAI virus entering wild bird populations.

A similar process occurred in 1996, when HPAI H5N1 jumped from wild birds into poultry and then evolved in chickens.

Unfortunately, this HPAI H5N1 strain was never controlled and has been spreading in poultry for decades.

It developed mutations that allow for wild birds to carry it more effectively, which resulted in massive global spread since 2021.

HPAI H5N1 has caused the death of hundreds of millions of poultry, millions of wild birds, tens of thousands of mammals, as well as humans, making it a virus of serious concern.

**Why now?**

The occurrence of the HPAI H7 outbreaks in Australia this year is likely not a coincidence.

Previous research has shown a link between rainfall in the Murray Darling Basin and poultry outbreaks in the southeastern states.

It's not that rainfall directly has an impact on poultry, but rather that it affects what is happening in wild waterbirds.

Following multiple La Niña years in a row with high rainfall, waterbird populations have surged, resulting in a high number of juvenile birds without antibodies against avian influenza viruses.

As the region transitions into a period of less rainfall, the waterbirds begin to concentrate in permanent wetlands, leading to increased contact rates and higher LPAI prevalence among wild birds.

With lots of LPAI in wild birds, the risk of spread to poultry increases.

So, we hypothesise that at present there is likely to be a lot of LPAI H7, including many genotypes within H7, in the waterbirds of the Murray Darling Basin.

As these birds have come into contact with poultry, there has been a virus jump from wild birds to free range poultry on at least three occasions, resulting in three distinct viruses in poultry.

To verify our hypothesis, we are out in the field catching ducks to understand what is happening in the wild bird population.

In addition to resolving this hypothesis, this work is contributing samples and testing results to local authorities to understand the context of the spillovers and confirm that HPAI H7 from poultry has not jumped back into wild birds.

**What should I do?**

If you see sick or dead wild birds or poultry, including backyard chooks, it is imperative that you call the Emergency Animal Disease Watch Hotline on 1800 675 888, regardless of which state you are located in.

If you have backyard poultry, check the jurisdictional websites to see if you are in the restricted or controlled areas and keep your chickens inside if you are.

Dr Michelle Wille

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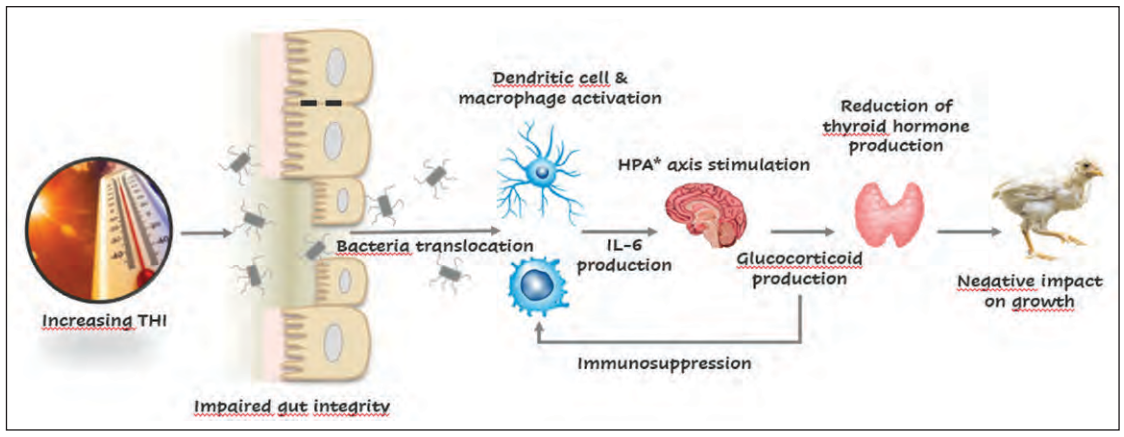
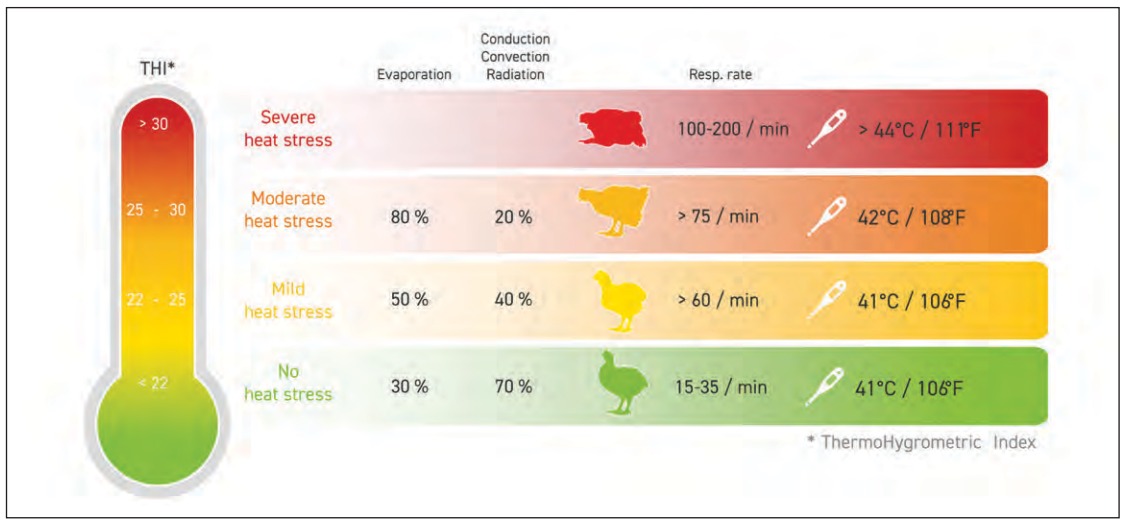
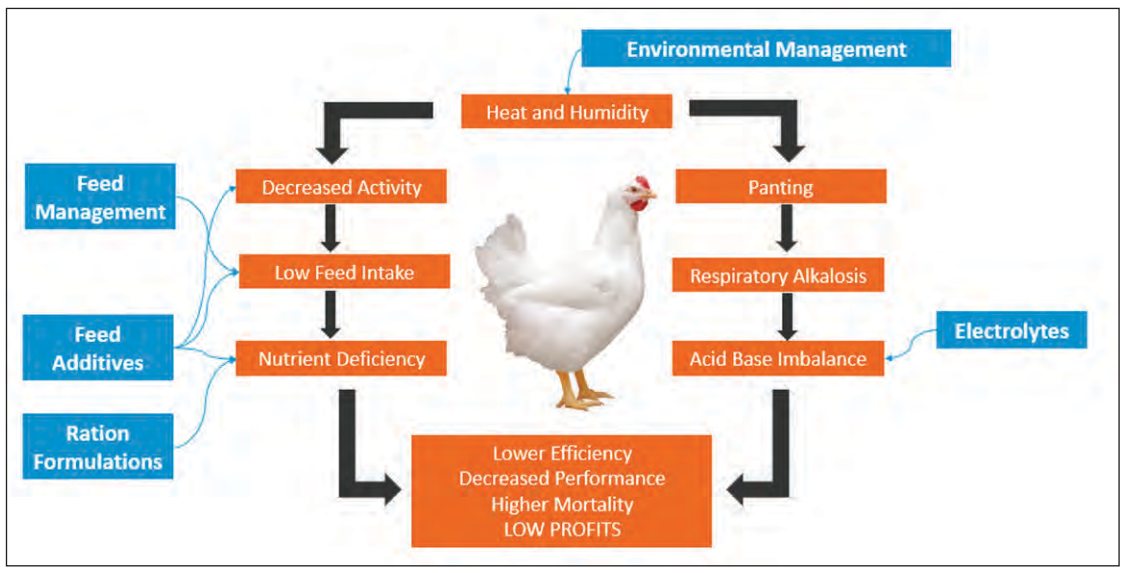



Physiological effect of heat stress.




Thermo-hygrometric index versus bird viability.




Certain feed additives also have benefits and supplementing products, such as Safmannan produced by Phileo by Lesaffre, can benefit flock production greatly.


# Combatting heat stress with a premium yeast cell wall

HEAT stress has a major economic impact on broiler and layer producers all over the globe.

Each year the cumulative cost of heat stress amounts to about $A3 billion.

This figure consists of the erosion of feed efficiency and bodyweight, reduction in egg production as well as eggshell quality.

A weighty component of economic impact is also the mortality rate, which may increase drastically with acute heat stress conditions.

Heat stress results from a negative balance between the net amount of energy flowing from the body to the surrounding environment and the amount of heat energy produced by the organism or taken up from the surroundings.

Heat stress occurs when the body's means of controlling its internal temperature starts to fail.

Conditions of high humidity compound the problem, as heat loss through evaporative cooling (for example, panting) is less effective due to the hygroscopy of the surrounding air.

In conditions of heat stress, bird behaviour changes.

In hot conditions, bird activity decreases and they may start to pant, creating an evaporative cooling effect from the mouth.

These behaviours result in several things, which negatively impact performance.

First, reluctance to be active means that feed intake drops.

Second, evaporative cooling from the mouth results in water loss from the body and if this water is not replaced – for example, if the water supplied in the water line is not cool and attractive to the birds – the body's internal mechanisms for controlling temperature are also compromised, as water is an integral part of this system.

Acid base balance is also affected by panting and this causes a host of other issues.

Physiologically, several key mechanisms exist to reduce body temperature.

First, peripheral vasodilation occurs where blood vessels in the legs and wings expand, allowing more blood to be brought to these areas where a greater external surface area allows heat to be lost from the blood through the surrounding tissues and into the environment.

While this peripheral vasodilation permits heat loss, it also results in reduction of internal perfusion, so the tissues of the gut are deprived of oxygen and vital nutrients.

This anoxic environment results in necrosis of the enterocytes, resulting in gut lesions that negatively impact nutrient uptake.

Performance drops occur due to lower levels of nutrient uptake, compounded by the propensity for bacteria and other infectious agents to proliferate and translocate across the epithelial barrier from the lumen of the intestine into the bloodstream during heat stress.

This translocation of pathogens may result in complications such as septicaemia and secondary infections.

The incidence of e coli and salmonella spp infections are normally seen to increase during heat stress periods.

During such challenges, the bird's immune system is put under pressure to combat the infection.

The immune system however is downregulated by the hypothalamic-pituitary-adrenal axis during heat stress conditions.

When conditions of heat stress arise, the hypothalamus is triggered, producing corticotropin releasing hormone, which binds to receptors in the pituitary gland.

The pituitary then produces adrenocorticotropic hormone, which triggers the adrenal glands to produce corticosterone.

Corticosterone is commonly associated with many stress responses and part of its activity is to downregulate the function of the thyroid, as well as the immune system.

Reduction in thyroid function results in lower levels of T3 and T4 hormones, which are intrinsic to normal metabolic function.

Low levels of these two hormones results in poor growth.

Concurrently, lower levels of immune system activity means that infections caused by pathogens such as e coli and salmonella spp go unchecked and massive levels of sepsis may occur in conditions of high heat stress response.

The HPA axis is further stimulated by release of interleukin-6 from gut macrophage and dendritic cells when they are faced with bacteria that have moved out of the intestinal lumen.

Fortunately, there are several tools available that producers can use to alleviate heat stress in birds.

Environmental and feed management as well as supplementation of electrolytes and

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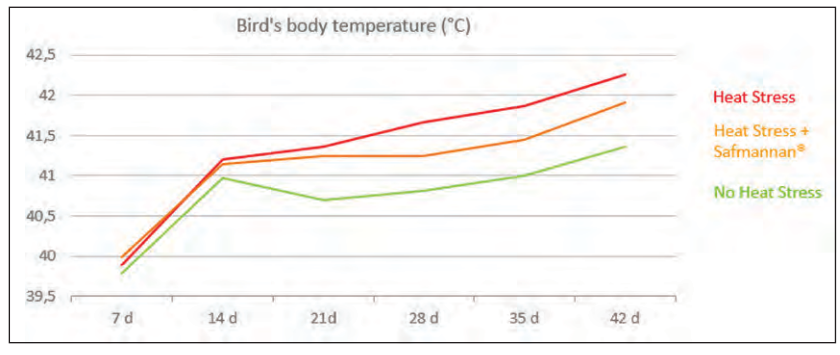
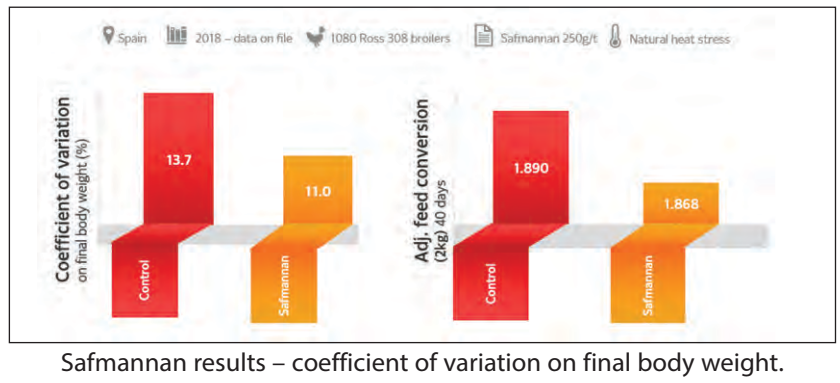
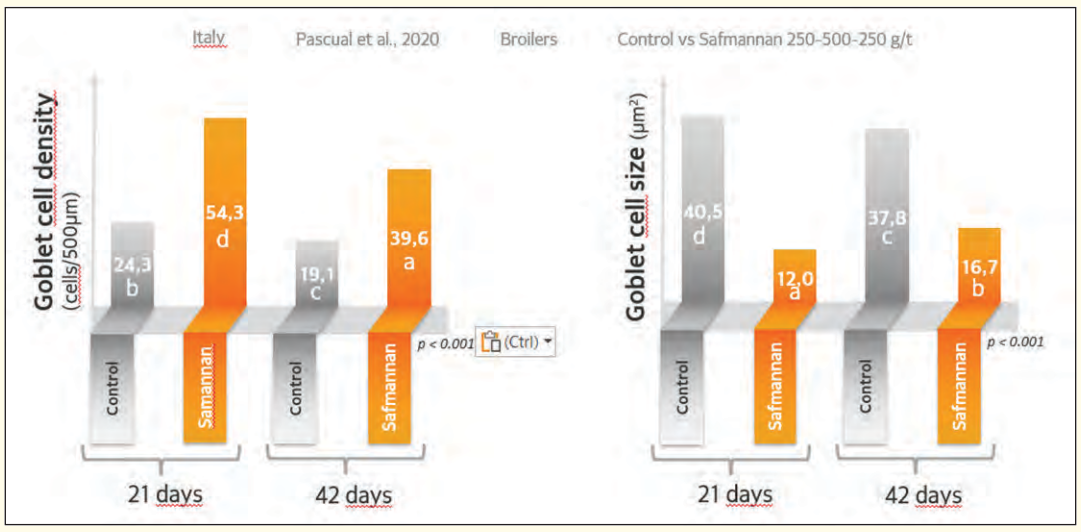



Safmannan results – bird's body temperature.




Safmannan results – coefficient of variation on final body weight.




Safmannan binds agents such as escherichia coli, salmonella and clostridium perfringens irreversibly.

# Combatting heat stress with a premium yeast cell wall

☛ from P12

alterations to the diet may all play a role in allowing birds to cope with heat stress.

Certain feed additives also have benefits and supplementing products such as Safmannan, produced by Phileo by Lesaffre, can benefit flock production greatly.

Safmannan is a premium yeast fraction, rich in mannan-oligosaccharides and beta-glucans (1.3 and 1.6).

It is obtained from primary culture and the purification of selected saccharomyces cerevisiae proprietary strains.

Safmannan has been shown to support gut function by increasing the number of goblet cells in the epithelium of the gut and allowing the body to produce optimal levels of tight junction proteins.

Maintenance of tight junctions reduces the risk of translocation of bacteria into the bloodstream and higher levels of mucus secretion from goblet cells means that opportunistic bacteria are trapped in this mucus layer and do not present a translocation risk.

In addition to this, Safmannan binds agents such as escherichia coli, salmonella and clostridium perfringens irreversibly and thus reduces the pathogen load faced by the birds.

The beta-glucans and mannans in the product also modulate the immune system of the bird by stimulating certain cells in the gut-associated lymphoid tissue, such as cells in the peyers patches and dendritic cells.

These cells increase activity and result in a more active and responsive immune system.

The production of IL-6 from the gut is reduced and therefore the stimulating effect of this molecule on the hypothalamus is reduced.

Maintaining the gut-blood barrier and preventing gut stress and inflammation reduces the stimulation signals sent to the HPA axis and therefore this whole axis and its effects are minimised.

These actions result in lower internal body temperature, maintenance of feeding behaviour, modulation of hormone production and reduction in stimulation of the HPA axis cascade.

Mortality is also reduced as the risk for infection is lower.

All these things result in markedly better performance in Safmannan supplemented birds versus their non-supplemented counterparts.

**Caitlin Vosloo**
**Phileo by Lesaffre**

# Leadership change at AHA

AFTER a highly competitive and comprehensive recruitment process, Animal Health Australia has announced Dr Samantha Allan as its new chief executive officer, marking a new era for the organisation.

Animal Health Australia Board chair Sharon Starick said the appointment comes at a pivotal time, as AHA seeks to enhance its biosecurity prevention, preparedness and response capabilities.

"We look forward to welcoming the new leadership from Dr Allan and know that, together with our members and the team at AHA, she will work tirelessly to continue protecting our Australian livestock sector from the rising threat of incursions," Ms Starick said.

"Dr Allan has extensive experience in emergency animal disease response activities, a skill set even more essential for AHA's leadership, with emergency animal disease responses occurring more frequently and having larger impacts.

"Plus, her commitment to our members – listening, learning, advising and recognising their diverse needs – has been impeccable."

Dr Allan said she was honoured to be appointed to the trusted national body dedicated to protecting Australia's animal health and biosecurity system.

"It's a tremendous privilege to work alongside the talented AHA team and our members to ensure that our livestock industries can continue to produce world-class food and fibre," Dr Allan said.

"The biosecurity space has never faced more challenges, with the current avian influenza outbreak an example of the increased biosecurity threats we face.

"However, it also shows the power of collaboration, with our industry and government members working together to manage the outbreak effectively and promptly.

"There has never been a more complex time for biosecurity in the modern Australian agricultural landscape.

"With the highly skilled team at AHA and the depth of knowledge and insights from our members, I'm looking forward to leading AHA into this new period – building on our mission to deliver solutions that enhance, strengthen and protect animal health and the biosecurity system."

Dr Allan has been acting Animal Health Australia CEO for 10 months and was in her previous role as AHA general manager of emergency preparedness, animal health and biosecurity for five years.

Animal Health Australia announced Dr Samantha Allan as its new chief executive officer.

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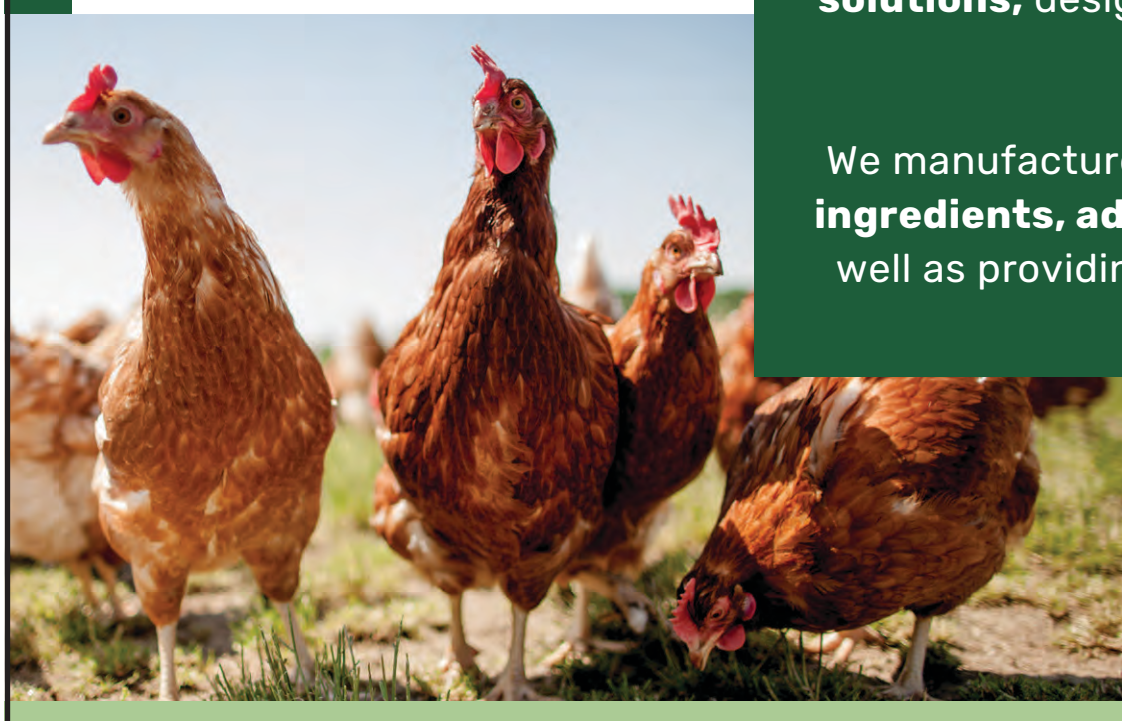

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# Coup in the coop hierarchical order

Chickens establish a pecking order to determine which chickens can access feed and water first.

The highest-ranking individual had the highest winning success and also interacted with the most other individuals.

THE phrase 'pecking order' literally comes from the hierarchical order of a flock of chickens.

This expression not only describes poultry behaviour, it also details a social leadership ranking.

The term was first coined by Norwegian zoologist Thorleif Schjelderup-Ebbe in 1922.

His study observed the noticeable order of chickens, detailing how chickens establish an order as to which chickens can access feed and water first.

It's not pretty but the pecking order among chickens settles when chickens peck weaker or more submissive chickens into compliance.

To make themselves appear larger and stronger, chickens will puff out their chests and ruffle their feathers when strutting in front of their competition.

If this doesn't work, they may then use their beaks to physically peck other chickens into submission.

This primitive bullying tactic among chickens shouldn't last very long, however it will establish a hierarchy within a flock and an order of who eats first, who gets to bathe first and it even affects their egg laying.

This social structure will change.

Factors such as aging hens, maturing hens, illness and the addition of new birds to a flock will all have an impact on the pecking order.

The following is an edited extract from the 'Coup in the coop: Rank changes in chicken dominance hierarchies over maturation' research, which can be viewed in its entirety at doi.org/10.1016/j.beproc.2023.104904

Chicken dominance hierarchies or pecking orders are established before maturation and maintained by consistent submissive responses of subordinate individuals, leading to stable ranks within unchanged groups.

Researchers, including recent 'Food with Purpose' presenter Michael Toscano, observed interactions of 418 laying hens distributed across three small (20) and three large (~120) groups.

The observations were performed before sexual maturation (young period) and additionally after onset of maturation (mature period) to confirm stability of ranks.

Dominance ranks were estimated via the Elo rating system across both observation periods.

Diagnostics of the ranks revealed unexpected uncertainty and rank instability for the full dataset, though sampling appeared to be adequate.

Subsequent evaluations of ranks based on the mature period only, showed more reliable ranks than across both observation periods.

Furthermore, winning success during the young period did not directly predict high rank during the mature period.

These results indicated rank changes between observation periods.

The current study design could not discern whether ranks were stable in all pens before maturation.

However, the data rather suggested active rank mobility after hierarchy establishment to be the cause for the findings.

Once thought to be stable, chicken hierarchies may provide an excellent system to study causes and implications of active rank mobility.

**Introduction**

Dominance hierarchies are found across multiple taxa and are characterised by asymmetrical relationships of dominance and subordination between the members of a group.

From observations of dominance relationships or individual attributes of dominance, researchers can infer the social rank of an individual, which can have direct implications for an animal's fitness.

The mechanisms of hierarchy establishment and maintenance, as well as the advantages and disadvantages of individual rank, can be investigated by examining social instability.

Social instability, often referred to as hierarchy dynamics, can occur through various processes including demographic and/or ontogenetic changes and individuals' status-seeking behaviour.

The resulting changes in individual rank can either be due to passive mobility without changes in the hierarchy order or active mobility with reordering of individual ranks.

Social instability can be assessed at the group level by characterising hierarchies in terms of their transitivity and steepness.

Transitivity is a measure of the orderliness of a hierarchy.

Using a theoretical group of three animals, whenever animal A wins against animal B, B wins against animal C and A also wins against C, the relationship is considered transitive.

If all relationships within a group are transitive, a hierarchy is considered linear and animals can be ranked perfectly from most to least dominant.

The steepness of a hierarchy reflects the extent of the differences between individuals close in rank.

The higher the steepness of a hierarchy, the greater the probability that a higher-ranking individual wins against lower-ranking individuals.

The various mechanisms and interdependencies between the properties and measures associated with social instability render detecting and measuring its extent complex.

For instance, rank instabilities can affect measures of transitivity and steepness.

Changes in rank can decrease transitivity and reduce steepness by altering winning probabilities.

Furthermore, methods which infer dominance ranks may introduce measurement uncertainties that can lead to false rank instabilities.

Sources of measurement uncertainty include unknown dominance relationships and sampling issues.

Transitivity and steepness can further affect the performance of rank estimations.

The more intransitive and the flatter a hierarchy is, the more difficult it is to discern the rank order and the larger the measurement uncertainty.

One method for estimating dominance rank, the Elo rating system, was adopted for its robustness to limited observations, unknown relationships and changes in ranks.

The Elo rating is based on a sequential approach, which updates rankings after each new interaction.

The Elo rating process allows changes in group composition to be considered and active rank mobility to be observed.

The randomised Elo rating is an extension of the method, which adds an estimation of the measurement uncertainty of the inferred ranks.

Because the randomised Elo rating shuffles the interaction sequence, the randomised method is recommended only for datasets in which the sequence of

☛ continued P15

Comparison of the mature period with the full dataset.

| Group size | Large groups | | | | | | Small groups | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pen | A | | B | | C | | D | | E | | F | |
| Dataset | full | mature | full | mature | full | mature | full | mature | full | mature | full | mature |
| **Uncertainity** | | | | | | | | | | | | |
| Repeatability | 0.76[b] | 0.90 | 0.78[b] | 0.87 | 0.80 | 0.89 | 0.61[b] | 0.88 | 0.74[b] | 0.89 | 0.87 | 0.96 |
| Randomised splitting | 0.43[b] [0.31, 0.54] | 0.62 [0.52, 0.71] | 0.52 [0.41, 0.63] | 0.6 [0.51, 0.68] | 0.6 [0.50,0.69] | 0.64 [0.56,0.72] | 0.34[b] [-0.05,0.65] | 0.53 [0.26,0.78] | 0.51 [0.22,0.76] | 0.53 [0.28,0.77] | 0.72 [0.53,0.88] | 0.73 [0.57,0.86] |
| **Temporal dependency** | | | | | | | | | | | | |
| Correlation between Elo rating methods | 0.84*** | 0.92*** | 0.76*** | 0.88*** | 0.80*** | 0.86*** | 0.25 | 0.77*** | 0.63* | 0.87*** | 0.78*** | 0.95*** |
| ICC agreement between Elo rating methods | 0.82 [0.75,0.87] | 0.90 [0.86, 0.93] | 0.78 [0.70,0.84] | 0.87 [0.82, 0.91] | 0.78 [0.70, 0.84] | 0.89 [0.84, 0.92] | 0.5[b] [0.07, 0.77] | 0.89 [0.74,0.96] | 0.67[b] [0.33,0.86] | 0.93 [0.83,0.97] | 0.80 [0.56,0.92] | 0.98 [0.94,0.99] |
| **Hierarchy characteristics** | | | | | | | | | | | | |
| Transitivity | 0.63*** | 0.91*** | 0.73*** | 0.86*** | 0.70*** | 0.93*** | 0.39* | 0.67** | 0.71*** | 0.82*** | 0.92*** | 1*** |
| Steepness | 0.36 [0.30, 0.41] | 0.70 [0.54, 0.86] | 0.34 [0.30,0.39] | 0.54 [0.46,0.61] | 0.38 [0.33,0.42] | 0.71 [0.60, 0.82] | 0.04 [-0.02, 0.111 | 0.36 [0.19,0.53] | 0.17 [0.09, 0.25] | 1.87 [0.72,3.03] | 0.37 [0.28,0.46] | 25.30 |

Table: Comparison of the mature period with the full dataset. Values indicated with b as superscript fell below a certain threshold and/or were not significant. P-values are indicated with ≤ .05 * , ≤ .001 * *, ≤ .0001 * ** , note that significance only applies to simple correlations and triangle transitivity. 95 percent confidence intervals are also provided for mean randomised splitting correlations, ICC estimates, as well as steepness k (exceptions due to censoring issues).

# Coup in the coop hierarchical order

☛ from P14

interactions is assumed to be irrelevant – relatively stable systems.

Nevertheless, in combination with data-splitting approaches, the randomised Elo rating can be a useful tool to assess both measurement uncertainty and hierarchy dynamics.

**Behavioural observations**

Social interactions of the hens were observed during three different events at several times of day to account for individual variation by time of day and resource use.

The events were feeder chain runs when fresh feed was delivered to the feeding troughs, competition around a high-quality food source (grapes) provided by the researchers and intervals in between two feeding chain runs (minimum 30 minutes after a run).

Prior to the first observations of social interactions, hens were familiarised with the grapes by offering them on four days within a two-week window.

The grapes were placed in one container for the small groups and in six containers for the large groups and were refilled after 10 minutes of observations to maintain hens' interest.

The observations were performed in two different time periods.

The first time period was between 10 and 12 weeks of age (young period) during the developmental phase but following the establishment of a pecking order.

Observations in the young period consisted of 12 days of 15-20 minutes for each pen within the three-week period.

During the young period, observations of feed chain runs and grape access were performed live, while observations in between the feeding chain runs were done using video recordings and the software Interact.

The second set of observations, conducted after the onset of sexual maturation and egg laying at approximately 17 weeks of age, was done at 24 weeks of age (mature period), when 88 percent of hens were assumed to have laid their first egg.

The timing of observations in the mature period allowed for seven weeks of habituation after the transition from rearing to laying pens.

Observations during the mature period were restricted to four days of 10-20 minutes, each within the one week for each pen to confirm stability of the previously established dominance ranks.

All observations during the mature period were done via video recordings for logistical reasons in the larger-sized laying pens.

The full dataset consisted of all observations from both the young and mature periods.

All observations were performed by one observer, who recorded all agonistic interactions during both sets of observations by means of an Ethogram.

Whenever any aggressive or submissive act occurred, the aggressor was deemed the winner and the recipient as loser.

**Conclusion**

When evaluating dominance ranks of laying hens from observations collected across two time periods, ranks were uncertain and temporally dependent.

Comparisons across time periods indicated active rank mobility between the observed time periods.

Potential reasons for active rank mobility could include social disruption by rehousing practices, sexual maturation of the birds, as well as the absence of males acting as mediators of agonistic interactions between females, in addition to decades of selective breeding.

Furthermore, the discussed factors could have had an impact on discrepancies between the presented and previous findings.

Further research will be necessary to understand the underlying mechanisms.

The steepness of a hierarchy reflects the extent of the differences between individuals close in rank.

# Stainless pump success

AUSSIE Pumps reports good results from its heavy duty Aussie GMP self-priming cast-iron semi-trash pumps for waste and litter management.

The pumps range from 2" all the way through to large 8" pumps that will handle flows of up to 8300LPM.

The big news is that some models, with up to 4" ports, are now available in 316 cast stainless steel – providing an outstanding combination of abrasion and corrosion resistance.

Aussie Pumps product manager Dolphie Mascarenhas said, "Though these pumps are not semi-trash, the big open impellers will handle solids in suspension."

"The self-priming design means the pumps will pull water through a vertical lift up to 6m," Mr Mascarenhas said.

Aussie Pumps set out to replace long-column sump pumps and submersibles with convenient self-priming pumps and has been impressed with its success, particularly in livestock waste applications.

Unlike long-column sump pumps, these surface-mounted self-priming pumps can easily be checked during routine maintenance and are clean and simple to service.

"What farmers like is being able to service the pump without having to pull it out of the pit," Mr Mascarenhas said.

The Aussie GMP stainless-steel pumps are available with both high flow and high head options.

For example, the 4" B4XR-A/X 15kW pump delivers flows to 2100LPM and the high head G3TMK-A/X 11 kW pump will produce heads to 55m.

The standard cast 316 stainless-steel pumps are available with port sizes from 2" up to 4".

They feature carbon mechanical seals with nitrile rubber seals – however Viton seals are also an option for corrosive applications.

These electric-drive pumps come close coupled to top quality 2-pole electric motors and the pumps from 4kW up come mounted on a heavy duty steel base for installation convenience.

"As our volumes of these pumps grow, we've been able to bring down our costs and pass those savings on to customers," Mr Mascarenhas said.

"They are excellent value for money and will outlast cast-iron equivalents many times over."

Further information on Aussie GMP stainless-steel pumps is available from Aussie Pumps at Norwest on 02 8865 3500 or check the aussiepumps.com.au website.

Aussie GMP motor pump with new 316 stainless steel is corrosion and abrasion resistant.


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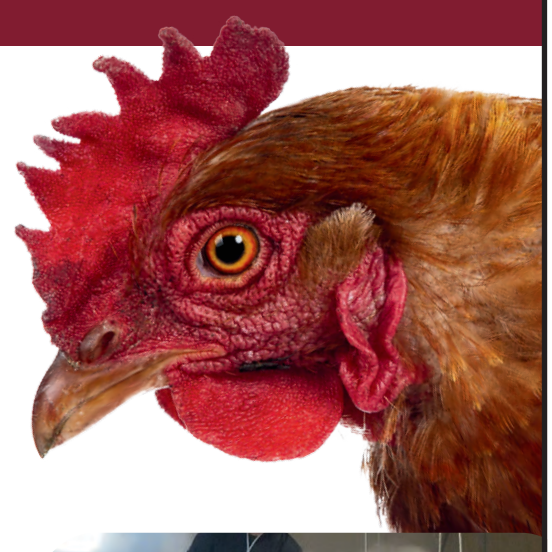

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The Better Chicken Commitment is a global set of best practices for chicken welfare. Photo: David Hogsholt for World Animal Protection

# Poor chicken welfare ranking for Australian fast-food chains

AUSTRALIAN fast-food restaurants, such as KFC, Nando's and Starbucks, have some of the worst chicken welfare standards in their supply chains when compared to their United Kingdom and US counterparts, according to a new ranking report 'Fast Food, Slow Progress' from World Animal Protection Australia.

The report is set to ruffle feathers among the Australian fast-food industry, as it calls out the continued use of fast-growing chicken breeds in their supply chains.

It shows how the rest of the world, including major fast-food restaurants in the UK and the US, is moving towards slower-growing breeds.

World Animal Protection Australia food systems campaigner Molly Tamulevich said, "Chickens are being bred to grow so fast their bodies can't keep up."

"These animals pay the price for the greed of fast-food companies, who are profiting from the suffering of millions of chickens.

"Factory farming practices, such as the use of fast-growing breeds by fast-food companies, have led to a chicken welfare catastrophe on an unprecedented scale," she said.

"Switching to slower-growing breeds is the single most impactful change that the industry can make to improve chicken welfare.

"Australian fast-food companies have the power to improve the lives of hundreds of millions of animals by signing onto the Better Chicken Commitment."

The Better Chicken Commitment is a global set of best practices for chicken welfare – betterchickencommitment.com/au-nz

Only one Australian fast-food company has signed on to the BCC to date – Domino's Australia New Zealand – and therefore it is the only restaurant chain to achieve a 'green tick' ranking in the 'Fast Food, Slow Progress' report.

In response to its commitment to chickens, a spokesperson said, "Domino's is proud to be the first fast-food restaurant chain in both Australia and New Zealand to sign the Better Chicken Commitment, an initiative aimed at significantly improving the welfare of chickens in our region."

"We are also proud to have adopted the Better Chicken Commitment in Europe, partnering with the non-profit organisation Compassion in World Farming to agree on a set of targets that we are committed to achieving by 2026.

"We are currently developing a company-specific roadmap that will enable our team members to engage in clear discussions with our business partners about incremental targets.

"This roadmap aims to ensure that we meet the requirements of the Better Chicken Commitment and transparently demonstrate our implementation plans to both internal and external stakeholders," the spokesperson said.

"We are proud that 100 percent of the chickens supplied to Domino's in Australia and New Zealand have free access to clean water and quality feed, with none housed in cages or multi-tier systems, however, we acknowledge that more can be done to improve broiler welfare standards within our supply chain.

"Domino's is dedicated to achieving its 2026 targets, ensuring that all of our chicken meets or exceeds the Better Chicken Commitment standards for all 2300 plus stores across Australia, New Zealand and Europe."

World Animal Protection International sees the BCC as a beacon of hope for improving chicken welfare globally.

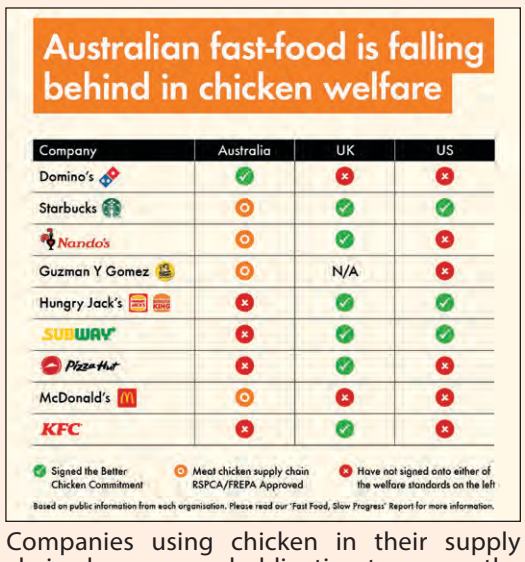
These science-based standards, aimed at improving the lives of chickens from birth to slaughter, have been adopted by over 500 food companies worldwide.

The 'Fast Food, Slow Progress' report also found that Australians consumed an average of 50.2kg of chicken per person in 2023, solidifying chicken as the most consumed animal in the country.

It further suggested that companies using these animals in their supply chains have a moral obligation to ensure the best possible welfare standards for them.

World Animal Protection Australia urges the nation's fast-food restaurants to address their impacts on chicken welfare by signing the Better Chicken Commitment.

**World Animal Protection Australia**




Companies using chicken in their supply chains have a moral obligation to ensure the best possible welfare standards for the birds.

# Mass disposal preparedness for poultry sector

THE Australian chicken meat industry is continually investing in research, development and extension of production practices that improve animal welfare, animal health, food safety, product quality and cost effectiveness associated with chicken meat production.

The chicken meat and egg industries have mutually recognised that emergency disease mitigation and management is a cross-industry priority and have invested in developing systems and materials to improve preparedness in the event of an emergency animal disease in either of these industries.

This project focusses on developing guidelines and management tools for producers that can be utilised in the formulation of on-farm emergency management plans.

Disposal of large volumes of biomass, in the form of carcasses, litter and feed, create significant biosecurity, environmental and logistical issues for those in charge of managing the operation.

By undertaking pre-emergency planning and identifying all the options available for a particular property, response time to an EAD can be significantly improved, thus enabling a more rapid business recovery.

While there are a number of options for biomass disposal presented in the Australian Veterinary Emergency Plan, not all of these are suitable for large-scale disposal, as would be the case with most commercial chicken farms in Australia.

It was determined that composting and burial are the most viable alternatives for mass disposal in the Australian context.

Both of these disposal methods create significant environmental implications.

Composting is a technically complicated process requiring expertise and knowledge in order for it to be successful.

This project has developed guidelines to assist with understanding and options for creating a viable composting system.

Deliverables from this project include a biomass calculation tool and a decision questionnaire, with the outcome of these being a printable disposal report for an individual property.

With this report, authored by Rod Jenner, Angela Scott, Margaret Sexton, Wayne Mossop and Kevin Wilinson, producers can develop an emergency management plan that incorporates the disposal of biomass in a biosecure and environmentally safe manner.

**What the report is about**

Disposal of infected material is a core component of the process of eradication and recovery from an EAD.

Prior planning will make for a much more structured and efficient decision-making process in the event of an EAD.

The Ausvetplan stipulates the requirements for disposal of carcasses and related infected material for an EAD.

Sections 2.1 and 2.2 of Ausvetplan Disposal Manual specifically state:

*Disposal of animal carcasses, materials and equipment (fomites) used in the husbandry of animals, and products and by-products created by the enterprises involved is a major concern in an EAD response…*

*Prior planning should be undertaken by animal health authorities, in conjunction with all stakeholders, including environment protection agencies, local government, and other agencies and service providers (for example, excavation and transport contractors, waste disposal operators).*

*This is particularly relevant for enterprises with large numbers of livestock…*

The Ausvetplan recommendations for preplanning of disposal of animal carcasses, materials, equipment, products and byproducts for an EAD or other mass mortality event that may occur in the poultry industry are yet to be actioned.

Australian Eggs and AgriFutures Australia have jointly commissioned a project, with the support of Primary Industries and Regions South Australia, to address industry's requirement to be actively involved in EAD preplanning.

Because it is a cross-jurisdictional undertaking, the project necessarily needs to satisfy the requirements and obligations of a wide range of stakeholders in all tiers of government as well as private businesses.

**Who is the report targeted at?**

The tools developed out of this project will provide farmers with the means to be able to self-assess their property and develop a report that outlines options available to them to dispose of large volume mass mortalities on or off their property.

This preparedness report will also be useful for decision makers to assess disposal options for an EAD, thus increasing the efficiency of the response.

**Where are the relevant industries located in Australia?**

This report has been written for the chicken meat and egg industries in Australia, but also has relevance for other poultry industries, such as duck and turkey.

**Findings**

During the project, it was determined that composting and burial are likely to be the most suitable option for most large-scale poultry producers in Australia.

For off-site composting, communication and establishment of relationships with commercial composting facilities during peacetime is recommended to determine the capability to perform large-scale composting in their facilities for an EAD.

Rendering and incineration are less likely methods of disposal in poultry in Australia.

However, for emergency disposal plans for individual producers, it should still be scoped if large-scale rendering facilities exist in their region.

Communication and planning during peacetime is recommended to determine what will happen to the rendered product to avoid it being sent to landfill.

**Recommendations**

In light of the findings of the project, the following recommendations and next steps can advance mass disposal preparedness in the Australian poultry industries further:

- Continue to develop and implement the Decision questionnaire and Biomass calculator tools online for producers on both Australian Eggs and AgriFutures Australia platforms
- Provide extension services to advise stakeholders of the online tools and how to use them
- Develop standard operating procedures for composting and burial that meet the requirements of Ausvetplan and Nationally Agreed Standard Operating Procedures administered by Animal Health Australia on behalf of Animal Health Committee for each state, given the wide disparity of EPA requirements – the literature review and guidelines for composting that have been developed from this project can be used as a framework for the development of state-specific SOPs
- Produce legally valid memoranda of understanding between poultry industry bodies, government agriculture and EPA departments, and private disposal-related service providers, such as composters, landfill operators and transport operators
- Progress the collaboration between state government agriculture and EPA departments to develop guidelines for on-farm burial and composting for intensive animal industries across all jurisdictions, as done by Queensland
- Work with GIS developers to create a GIS tool that consolidates all data that addresses the Ausvetplan and environmental criteria for mass disposal in the Australian poultry industry – at present, this data is dispersed and requires navigation through various GIS tools and websites.

This project was jointly funded by AgriFutures Australia and Australian Eggs Limited, with generous in-kind support by PIRSA.

The documents can be viewed in full by scanning the QR codes below.

Scan for the project report in its entirety.

Scan for the poultry waste composting guidelines.

The Ausvetplan stipulates the requirements for disposal of carcasses and related infected material for an EAD.

# Industry days offer more than traditional farming

WORKFORCE needs to be a priority for Australian agriculture as we face widespread shortages across the entire industry.

We need to attract and retain more agricultural employees and leaders, and we need to understand and respond to the future workforce needs of Australia's rural industries.

These priorities are at the forefront of AgriFutures Australia's strategic plan.

AgriFutures Australia, Training Services NSW and TAFE NSW recently hosted over 300 students at the Ag Industry Days, an event that showcased the diverse career opportunities in Australia's agricultural industry.

The events challenged the idea that 'agriculture is just farming' and showcased to students the opportunities in the industry right on their doorstep.

AgriFutures Australia manager workforce delivery Abbey O'Callaghan said the workshops were developed in response to recommendations from a recent community perceptions and worker experiences report.

The report emphasised the need to broaden the conversation about roles in the industry and showcase new technology as a selling point.

"Some of the world's biggest challenges are directly related to agriculture – food security, sustainability and climate change," Ms O'Callaghan said.

"The Ag Industry Days challenged perceptions of the agriculture industry and galvanised the next generation of agricultural innovators.

"Importantly, we wanted to inspire students to embrace science, technology, engineering, mathematics and agricultural subjects as they progress into their senior school years."

During the Ag Industry Days, attendees were challenged to answer the question, how do we rethink agriculture?

Participating students could refine their answers and submit their 'pitch' to AgriFutures Australia.

The responses will offer important insights into the perspectives of young people considering their career options.

Innovative food waste management company Goterra was one of the diverse local industry organisations that hosted students for field trips during the event.

Goterra chief executive officer and 2023 ACT Australian of the Year Olympia Yarger recognised the role of such events in dispelling misconceptions about the agriculture industry.

"One of the biggest challenges startups in the agritech space are facing is how to attract talent that hasn't necessarily grown up in agriculture but is passionate about its future," Ms Yarger said.

"A contributing factor to this challenge is the belief that agriculture is old-fashioned or stuck in the past.

"The reality is Australian agriculture remains on the forefront of innovation in the sector and is so diverse in opportunity, it can almost be difficult to choose where to put one's attention.

"Events like the Ag Industry Days are critical in showcasing the opportunities available and, as always, I'm so pleased Goterra is able to support and participate."

Training Services NSW senior project officer Katie Friedlieb said the workshop provided students insights into an industry that may not be on their radar.

"Agriculture is no longer just about the traditional farmer, and we need professionals working in the sector in an off-farm capacity," Ms Friedlieb said.

"The Ag Industry Days were an informal and interactive day for students to see the bigger picture."

The field trip locations included CSU Global Digital Farm, TAFE Primary Industries Centre, Riverina Oils and My Chef in Wagga Wagga, while Goterra, TAFE NSW National Environment Centre and Wolki Farm were the field trip locations in Albury.

**AgriFutures Australia**


Ag Industry Days workshops were developed to broaden the conversation about roles in the industry and showcase new technology. Students at Goterra for an Ag Industry Day field trip.

# New era for PRF

THE Poultry Research Foundation of the University of Sydney was established in 1958 to provide an interface between academic research and industry.

PRF's contribution to the development of the Australian poultry and stockfeed industries has been far-reaching, covering not only science but also workforce development and the provision of leadership.

We have recently been given the green light to officially become a research centre within the university.

The transition changes PRF from a foundation – deemed a fundraising body under Australian Consumer Law – to a university research entity aligned with the poultry and allied industries.

As a result, PRF will retain its name as well as the industry council as an advisory body.

Operation-wise, the new PRF will be more flexible and better resourced.

Flagship events, such as the annual Australian Poultry Science Symposium will still be organised by PRF.

We will hold APSS 2025 on February 10-12, 2025 on the beautiful campus of the University of Sydney.

We will reveal the topics and speakers in the coming weeks.

I am looking forward to welcoming you to APSS at the University of Sydney – Abercrombie Business School in 2025.

Reach out to us at any time, visit poultry-research.sydney.edu.au

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# ■ Letter to the Editor ■ Letter to the Editor ■ Letter to the Editor

It is the responsibility of those making submissions to ensure the correctness of their claims and statements. The views expressed in this publication are not necessarily those of the publisher.

THE reality of farming free range in volume – scan the QR codes, these will bring up current information on the ACT, NSW and Victorian avian influenza outbreaks.

Animal activists, supermarkets and big business are driving the agenda, however the facts cannot continue to be ignored.

This latest outbreak of avian influenza started in free range and spread to the barn and caged sheds.

Fact!

We know wild birds, in particular migratory birds, carry the disease.

Fact!

We also know biosecurity on a free range farm is difficult at best.

About 2 million birds have been lost in three separate outbreaks across two states and the ACT.

How can it be assumed the free range system offers better animal welfare outcomes?

And what of the stress farming families are being put under?

Big business will always pursue the higher profit margins, however the poultry farmer is taking all the risks.

Maybe corporations should consider taking some of the risk?

The issues in this farming system were evident back in the 1970s, the spread of disease and the control of wild birds was always difficult.

Locking up the birds and separating them from their faeces made the difference, hence the caged system was developed.

Small-scale farming = free range farming = low risk.

Large-scale farming = caged farming = low risk.

Large-scale free range farming = high risk.

All our farming systems – barn, caged and free range – are critical when it comes to giving consumers choice and assuring food security and affordability in this country, while farm management is still the key in achieving positive animal welfare, food safety and biosecurity standards.

**Brian Ahmed**

Scan for ACT avian influenza updates.

Scan for Victorian avian influenza updates.

Scan for NSW avian influenza updates.

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[1] Froyman R. & De Keyser H. Flubendazole: safety regarding egg production and reproductive performance of breeder chickens. Av Dis 27:1 (43-48). 1983.

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