

Cracking new study excites egg lovers

BOILED, scrambled or fried, if you're an egg lover, a better breakfast is hard to beat.

But with eggs often associated with high cholesterol, it can be hard to know whether your meal choice is healthy or not.

A new study from the University of South Australia now hopes to crack this long-standing conundrum by testing the effects of high and low-egg diets, and high and low-saturated fat diets on cholesterol in the body.

The study will compare the effects of three different diets over five weeks:

- High egg diet – high cholesterol plus low saturated fat
- Egg-free diet – low cholesterol plus high saturated fat
- Control diet – high cholesterol plus high saturated fat, which is representative of the typical

Australian diet.

Conducted by UniSA's Alliance in Research in Exercise, Nutrition and Activity, the study will compare blood cholesterol and other blood lipid levels to determine whether eggs help or hinder cardiovascular disease risk.

If you are aged 18-60 years, a non-smoker and have healthy blood cholesterol as measured at a screening appointment with UniSA, you could be eligible to participate in the study.

The study will take place over five sequential weeks where participants will have aspects of their fitness, weight, eating and sleep measured.

Blood pressure and blood samples will also be collected.

To find out more, visit redcap.link/UniSAEggDietStudy



Eggs are often associated with high cholesterol, so it can be hard to know whether your meal choice is healthy or not. Photo: Priscilla Du Preez



PoultryGrad students from their 2019 visit to a hatchery in Toowoomba in Queensland.

PoultryGrad is a win win project

PRODUCING the next generation of poultry scientists is one of the key features of Poultry Hub Australia's education program.

An important aspect is to establish close links between our students and industry, which will encourage engagement of end-users in student research projects.

This will have a two-fold benefit.

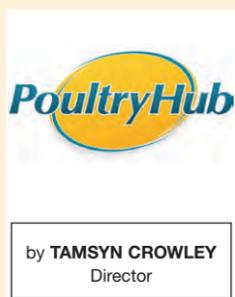
First, while pursuing frontier science, our students will have the future application of their results in mind.

Second, industry will have ownership of the students' research and instil in the students industry awareness.

The end result is a win-win situation.

One of the projects that facilitates this type of engagement is PoultryGrad.

PoultryGrad provides students with the opportunity to meet people from the industry



and students from other universities.

The event enables them to think and discuss their future careers, build peer networks and discuss how their research can benefit the poultry industry.

While many poultry science students have a keen interest in poultry, very few of them have ever visited a poultry farm or had a direct interaction with anyone from the industry. PoultryGrad provides this opportunity and ensures we are equipping poultry scientists with

the right tools to make a difference.

After a two-year break, PoultryGrad is back on... in person.

Which is super exciting!

What's even more exciting is that the industry host for this year's event is a past PoultryGrad participant – proof that the program works.

This year's event will be held in regional Victoria.

Participants will have the opportunity to visit a broiler farm, a feed mill and a processing plant.

In addition, they will have the pleasure of undertaking a networking session and participating in a program that will develop their own science ideas, plus learn how to pitch these concepts to industry.

This program is open to all PhD, Masters and Honours students currently studying at an Australian university.

To find out more information or to apply to be part of the program, head to our website at poultryhub.org

or contact PoultryHub Australia education officer Carissa Anderson on poultryhub@une.edu.au

I hope you are all safe and well and encourage you to reach out.

We are always looking for ways to support industry and farmers and welcome any suggestions of how we can be of assistance.

If you have an idea or would like to chat all things poultry, feel free to reach us on 02 6773 1855.



PoultryGrad students in 2019 learning from Dr Mark Dunlop in their 'get to know industry' session.



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Poultry Industry Calendar of Events

2022

MAY 10-11 – British Pig & Poultry Fair,
Stoneleigh UK, pigandpoultry.org.uk

MAY 15-17 – Poultry Information
Exchange and Australasian Milling
Conference (PIX/AMC), www.pixamc.
com.au

MAY 31 - JUN 2 – VIV Europe 2022,
Netherlands, viveurope.nl

NOV 6-10 – SIMA Paris, France,
en.simaonline.com

NOV 8-10 – European Symposium on
Poultry Genetics, Hannover Germany,
www.espg2022.org

2023

SEP 4-8 – Congress of the World
Veterinary Poultry Association,
Verona Italy, www.wvpac2021.com

**How to supply event details: Send all
details to National Poultry Newspaper, PO
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Disease, sickness and recovery

EGG farmers dread disease – they work hard should birds become sick and look forward to the recovery of egg farming once the storm passes.

There is one mindset in relation to diseases impacting the egg industry at a domestic level and an entirely different one when turning our minds to the impact of what these diseases mean, both overseas and if they suddenly turn up on our doorstep.

The diseases of main concern to the egg industry are defined below.

Avian influenza

Bird flu – also known as avian influenza – is a type A influenza virus.

It is lethal to poultry and is potentially fatal in humans.

Bird flu spreads between both wild and domesticated birds.

It has also been passed from birds to humans who are in close contact with poultry or other birds.

Newcastle disease

Newcastle disease is a highly contagious disease of birds caused by a paramyxovirus.



Egg Farmers
of Australia

by MELINDA HASHIMOTO
CEO



Birds affected by this disease are fowls, turkeys, geese, ducks, pheasants, partridges, guinea fowl and other wild and captive birds, including raptors such as ostriches and emus.

Compulsory vaccination of all commercial layers has ensured this disease is currently under control in Australia.

The risk occurs if Newcastle disease strains are introduced into Australia and then mutate.

Infectious laryngotracheitis

ILT is a highly contagious respiratory disease of chickens that can cause significant problems in unvaccinated or poorly

vaccinated flocks.
Salmonella enteritidis, typhimurium, pullorum and gallisepticum

Salmonella enteritidis

Salmonella enteritidis is a bacterial disease of poultry and can cause foodborne illness in humans such as gastroenteritis – commonly known as ‘gastro’ – when contaminated food is consumed.

The infection is almost impossible to eradicate from a flock, so birds must be euthanised.

It can be carried inside eggs.

Salmonella typhimurium

Salmonella typhimurium is the most common cause of human gastroenteritis that can be attrib-

uted to the consumption of eggs.

Infection of hens is usually subclinical and difficult to detect.

Biosecurity to keep it out of farms, along with vaccination and in-feed preventatives, are the most effective control measures.

Salmonella pullorum

The Australian commercial chicken industry is free of salmonella pullorum.

Testing does occur in order that a certificate can be issued providing evidence of a SP-free flock.

This is important for export purposes.

Salmonella pullorum is exotic to Australia.

Salmonella gallisepticum

Mycoplasma gallisepticum is commonly involved in the polymicrobial chronic respiratory disease.

In layers and breeders, it is usually subclinical but causes a reduction in the number of eggs laid per hen over the production cycle.

Once infected, flocks can be carriers.

This virus is exotic to Australia.

Overseas strains

Overseas strains of disease could not only decimate our industry, but a further issue is that overseas virus or disease incursions may mutate to combine with local strains leading to new variants.

Not only can this occur through a disease but also through the use of vaccines.

In the past, a situation occurred where a shortage of ILT vaccine resulted in a new vaccination being used that recombined with local strains, resulting in virulent ILT.

The current vaccines did not protect as well when this new variant emerged.

Bio and border security

It is therefore important to acknowledge the work undertaken by government biosecurity and customs officers – for every illegal egg product collected at our borders and every vessel checked to ensure birds do not come into our country that could have disease, these efforts and the diligence of our egg farmers help to ensure our industry remains safe.

Imports

For the above reasons, it is important that shell eggs are not imported into Australia when a risk is posed.

Farmers understand domestic disease risks but it is the unknown overseas strains and those that could mutate that lead to uncertainty.

Our industry is very fortunate to have a number of expert poultry veterinarians who continue to monitor overseas strains when reported and have strong relationships with producers so that if a farmer has an issue, they can determine the disease and impacts at the earliest stage of prognosis.

Thanks to Dr Rod Jenner for his technical assistance and definitions from various state government agencies.

Further resources in relation to poultry disease are listed below.

- agriculture.vic.gov.au/biosecurity/animal-diseases/poultry-diseases/avian-influenza-bird-flu

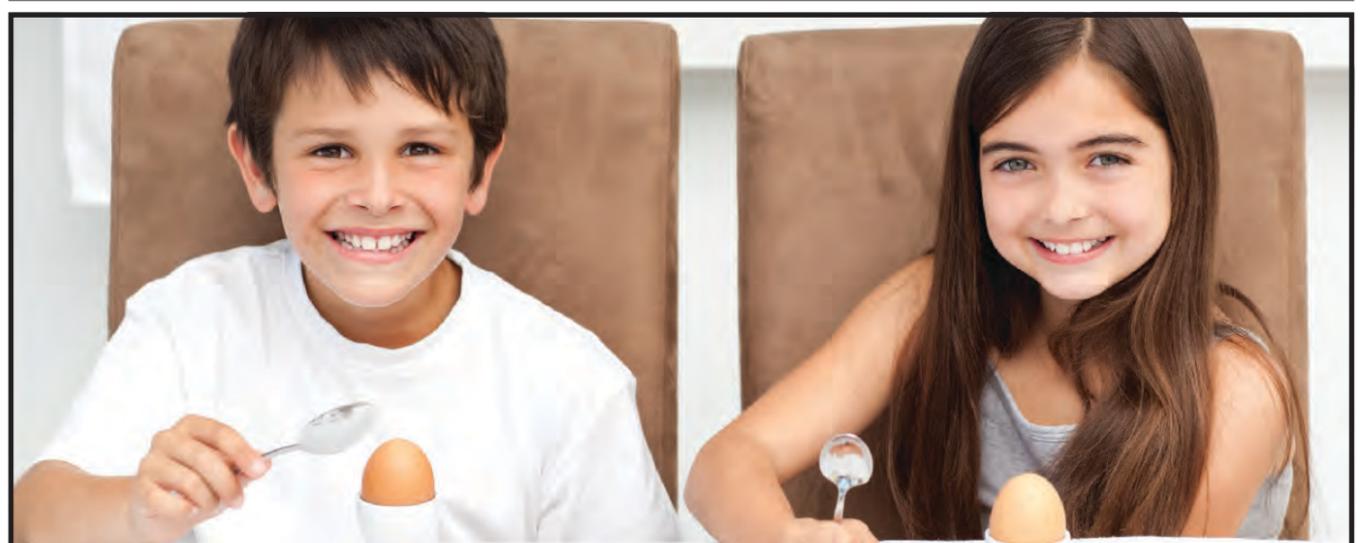
- australianeggs.org.au/for-farmers/resources/avian-influenza-guidelines

- agriculture.vic.gov.au/biosecurity/animal-diseases/poultry-diseases/salmonella-enteritidis

- australianeggs.org.au/what-we-do/leading-research/salmonella-enteritidis-response-plan



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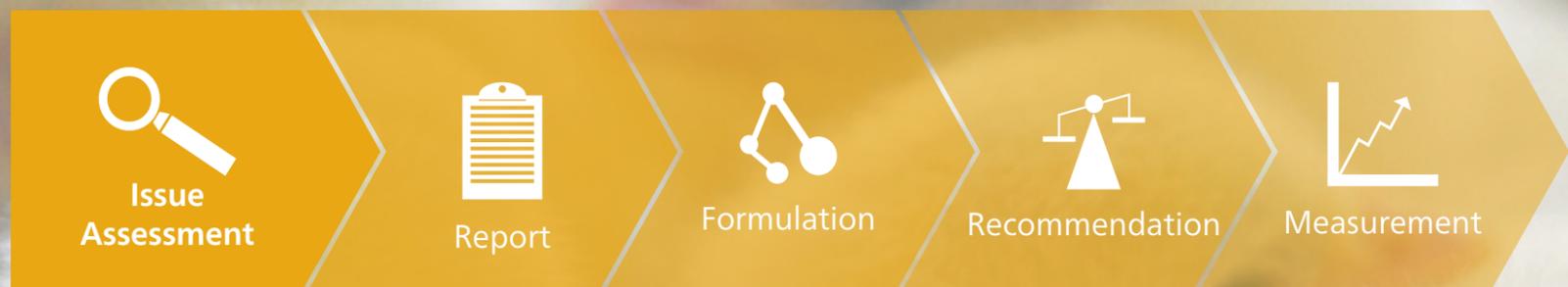


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Of course, it's unfair to lay the blame on eggs alone for my cholesterol!



What I eat with my eggs is a healthy measure of supplementary 'googy' goodness.



Though probably not as healthy minus the coloured veggie supplements, this breakfast was yummy and eaten relatively guilt-free.

Cholesterol confession courtesy of confusion

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CONFESSION – I love eggs and I average half a dozen a week, most often poached, sometimes fried.

Penance – I occasionally berate myself that this is overindulging, especially in relation to the reputation gained rightly or wrongly that eggs are high in cholesterol and are therefore not a good option in such numbers – particularly when my age has moved way beyond half my life expectancy.

While the Heart Foundation puts no limit on how many eggs healthy people can eat each week and states that eggs have minimal effect on blood cholesterol levels, many consumers, myself included, remain confused and somewhat sceptical.

Why we are that way is probably due to historical reasons which could logically be discarded, but sometimes that's difficult – despite the mounting pile-up of credible and arguably persuasive evidence in favour of 'free ranging' egg consumption.

Cant Comment
by BRENDON CANT



Having said that, the realist, reader and researcher in me is reminded that consumption of saturated fats also impacts cholesterol levels.

By way of a disclaimer, for the past couple of years I've been taking a daily statin to reduce cholesterol – on doctor's orders of course – as my measured levels steadily climbed for a few years prior to succumbing to a prescriptive measure.

Anyway, on a promising note for cholesterol 'clients', the University of South Australia is hoping to crack the long-standing conundrum by testing the effects of high and low egg diets and high and low saturated fat diets on

cholesterol in the body.

UniSA's Alliance in Exercise, Nutrition and Activity will compare blood cholesterol and other blood lipid levels to determine if eggs help or hinder cardiovascular disease risk.

A waxy substance made by the liver and obtained through the diet, cholesterol can build up in blood vessels, making it hard for blood to flow through arteries.

Too many of these fatty deposits can lead to cardiovascular diseases.

Lead researcher Professor Jon Buckley believes eggs have received a raw deal when it comes to cholesterol.

"Dietary cholesterol has

long been implicated in increasing bad cholesterol in the blood, which promotes cardiovascular disease," Prof Buckley said.

"Yet foods rich in cholesterol are also typically high in saturated fat and we now think that it is the saturated fat rather than the cholesterol that's associated with increasing blood levels of bad cholesterol and the risk of cardiovascular disease.

"Eggs are high in cholesterol but low in saturated fat, so we believe that their consumption does not increase bad cholesterol.

"There's also evidence that a key nutrient in eggs may cross into the brain and make people more physically active.

"So, it could be that eggs are beneficial for us rather than increasing the risk of heart disease."

UniSA is now recruiting suitable participants for the study.

It's looking for people aged 18-60 years, non-smokers and with healthy blood cholesterol.

That rules me out on two of the three characteristics.

Hint – I don't smoke. ☹️

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keep them clean and free from bugs

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By using a recyclable cardboard box, they are using 70 percent less plastic packaging than the traditional tray and film packaging.

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Flooding overwhelmed QLD poultry farmer

EGG farmer Gordon McWilliam of Kenilworth Free Range Farm in the Mary Valley was completely overwhelmed by the scale of the recent extreme weather event and resultant flooding.

Typically rational in an emergency, he was frozen to the spot when he walked out of his cold room on Friday February 25.

Viewing rapidly rising floodwater around his four chicken caravans and 2000 hens, he thought, "How am I going to get the caravans out?"

"I was trying to think," Mr McWilliams said.

"I knew I couldn't do it on my own, and you're faced with a choice – 'Which ones do I save, if any?'"

Neighbours Steve Waldren and Karen McNamara helped him "snap out of it" when they arrived soon after.

Using the top of a tractor slasher, the front loader bucket as well as a kayak, they transported the majority of drowning hens to safety and were able to save all but 200.

"We would have lost a

thousand chickens with-out the neighbours," Mr McWilliam said.

"They were just brilliant." At the time of writing, Mr McWilliam estimated 1428mm of rain had fallen in the area this year, compared with the 174mm for the same period in 2021.

Incredibly, 1041mm of that total rain fell in only five days.

The damage bill for Kenilworth Free Range Farm will be more than \$92,000 for destroyed farm infrastructure, drowned birds and lost production.

Helping coordinate requests to the SES and checking on neighbours, Mr McWilliam had used his tractor to help carve a track through wrecked roads to the bridge.



Chickens were saved by loading some onto a tractor slasher.



Gordon McWilliam's neighbour Steve Waldren helped to save hundreds of chickens from rising floodwater.

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UTS researchers develop AI monitoring system

MANY Australians are big consumers of free range eggs.

They prefer their hens to roam free on green pastures – or at least large barns – rather than being kept in cages.

However, this freedom can also result in increased dangers to hen health.

Researchers from the University of Technology Sydney have developed a world-leading artificial intelligence-based system to monitor the movement and behaviour of cage-free hens to improve their health and welfare, and minimise the dangers.

Professor Jian Zhang and his team from the Multimedia Data Analytics Lab in the Global Big Data Technologies Centre based at UTS Tech Lab are working to develop a real-time video monitoring system, which was recently trialled on an egg farm in Windsor, NSW.

The project is funded by Australian Eggs – a member-owned not-for-profit organisation that invests farmer levies and public funds in research and development on behalf of the egg industry.

"The farm in this project that is trialling the technology has an average of 8000 hens spread across multiple sheds, and it's difficult for farm staff to continuously monitor hen behaviour," Dr Zhang said.

"Cage-free hens have greater freedom to roam and forage, however there is a risk that

they can flock together and 'pile-up', which can result in hens being smothered.

"While it is not common, if a pile-up does occur, currently there are no warning systems to alert farmers that this might be occurring."

Effective controls and predictors of risk are not known, so the egg industry is looking to develop effective reduction strategies.

Additional to the development of the real-time monitoring system, Australian Eggs has funded a research project that is currently underway to understand what these risk factors are.

The new system alerts farm staff to any crowding behaviour, as well as monitoring the hens' access to food and water to observe changes in behaviours, and any lack of movement in individual hens, which could indicate an injury or illness.

Australian Eggs managing director Rowan McMonnies said it was exciting to see a solution that could reduce labour requirements, minimise human intervention in sheds and improve animal welfare.

"This important investment in AI-technology can not only lead to happier, healthier and more productive hens, but also improve farm management and reduce costs," Mr McMonnies said.

The system currently being trialled uses four cameras – two inside

and two outside the sheds.

The system has been designed to be scalable and can be increased depending on the area.

The technology incorporates pattern recognition algorithms to count and monitor flock density and behaviour.

The UTS team includes poultry and animal behaviour specialists to help analyse and interpret hen behaviour.

The next phase of the project will include a deeper analysis of behaviours such as drinking, feeding, foraging and standing.

"Poultry are very sociable and gregarious animals, so we need to build an ethogram – or catalogue of behaviours – which includes both individual and interactive behaviours to better monitor growth and welfare," Dr Zhang said.

There are also plans to build a mobile phone app that can alert supervisors to potential trouble.

The app will include machine-learning technology to improve the system with feedback from users.

The UTS team will run a larger trial across multiple farms in coming months.

Once the trials are complete, they hope to commercialise the technology so that it can be implemented on a wider scale.

There is also potential to expand the technology to other areas of farming.

Evaluation of substances affecting turkey spermatozoa motility

THE following research by Peter Massanyi, Tomas Slanina and Michal Miskeje on the evaluation of substances affecting turkey spermatozoa motility was submitted for the recent 2022 Australian Poultry Science Symposium.

Turkey spermatozoa storage is successfully utilised in commercial breeding operations, but the efficiency of such systems in maintaining spermatozoa fertilising ability in vitro for 24 hours leads into insignificance in comparison to the oviductal storage system in vivo, which can maintain fertilising ability for many weeks.

Most of semen diluents provide the energy for metabolism and buffering capacity, prevent clumping by thinning out the concentration as well as increasing the metabolic activity of the spermatozoa and enhancing their motility.

From a practical standpoint, this reduces the normal number of males required and the overall costs.

In order to maintain the fertilisation ability of stored spermatozoa in vitro, semen has to be stored at 2-8C and diluted in a suitable diluent.

The use of low temperatures in combination with a buffered saline medium containing gly-

colytic substrates and intermediates of the citric acid cycle is not sufficient to ensure prolonged in vitro survival of turkey spermatozoa.

The majority of diluents used are salt solutions convenient for immediate survival of spermatozoa because they provide osmotic pressure and pH identical with the seminal plasma.

Diluents should also contain various energy substrates.

Therefore, diluents used for poultry semen are enriched with carbohydrates – glucose or fructose – and other components probably to provide energy such as citrate, glutamate or acetate.

Additionally, the age of turkey males affects the quality of fresh and also incubated spermatozoa.

The ageing process was accompanied by a reduction of the number of spermatozoa and semen volume – decreasing motility, viability and membrane integrity of spermatozoa.

Consequently, these changes lead to a progressive decrease in the fertilising ability of turkey semen and can also influence the preservation during storage.

The aim of the study was to evaluate the impact of selected additive substances with the potential stimulatory ef-

fects on the spermatozoa motility of domestic turkeys – *meleagris gallopavo domesticus* – during in vitro incubation.

Specifically, the effect of different concentrations of trehalose, fructose, caffeine and taurine diluted in the physiological solution as the culture medium were analysed.

The primary aim of the study was to develop a new semen extender usable in practice based on obtained results.

The individual motility parameters were analysed by a computer-assisted semen analyser system at 5C and 41C in different time periods.

The highest monitored concentrations of trehalose 10mg/ml and fructose 20mg/ml showed a relatively balanced value of motility parameters.

In the lower concentration of trehalose 5, 2.5, 1.25mg/ml and fructose 5, 10, 15mg/ml, a negative effect on the individual motility parameters of turkey spermatozoa was observed.

A significantly higher and progressive motility of spermatozoa was detected in the samples containing caffeine ranging from 0.16mg/ml to 7.5mg/ml in comparison to the control sample at 5C.

At cultivation temperature 41C, the positive effect of caffeine was shown only at the begin-

ning of incubation. The concentration of taurine above 10mg/ml had a negative effect on spermatozoa motility.

Significantly, a stimulatory effect of taurine on motility parameters was observed in the samples containing 7.5, 5 and 2.5mg/ml of taurine.

Following the continuous results, three new semen extenders were prepared.

At the cool media incubation of 5C, all three extenders showed significantly higher values of all CASA motility parameters from 1-5 hours during in vitro incubation.

After 24 hours of incubation, significantly higher values of motility parameters were measured in the extender three compared to the control.

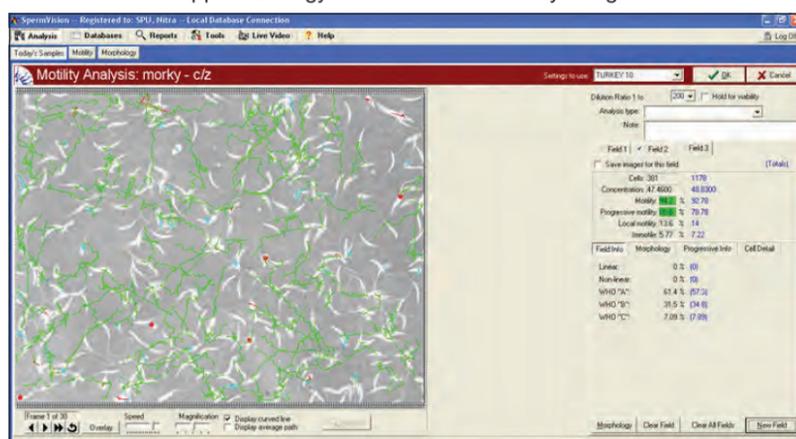
In conclusion, we can state that we have successfully developed new turkey semen extenders, which not only maintain spermatozoa motility during short-term storage in in vitro condition, but also have a stimulatory effect on turkey spermatozoa motility.

For further information on this research, contact Peter Massanyi of the Slovak University of Agriculture in Nitra, Slovak Republic on peter.masanyi@uniag.sk

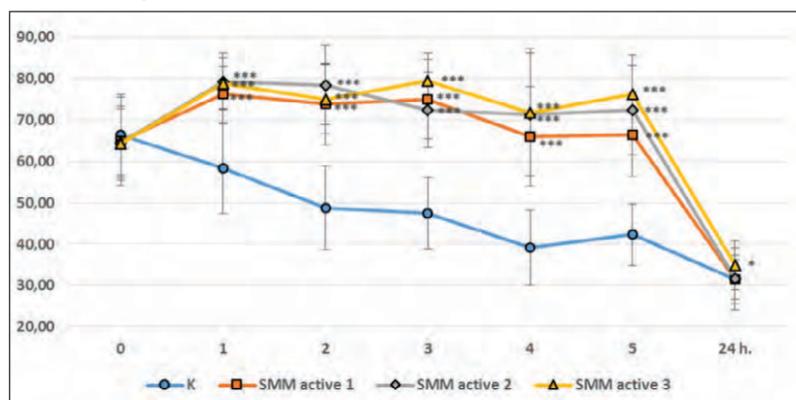
Peter Massanyi, Tomas Slanina and Michal Miskeje



Analysis of spermatozoa motility using a computer-assisted semen analyser system at the Institute of Applied Biology of the Slovak University of Agriculture in Nitra.



The image of detailed spermatozoa motility analysis using a specific turkey spermatozoa setup.



Turkey spermatozoa motility in percentage in different semen extenders.

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Confidence rises as transparency drives consumer trust in egg sector

THE Australian egg industry has proven the power of transparency, with the release of the annual Sustainability Framework Report by Australian Eggs showing levels of trust in the egg industry by Australians has increased significantly since 2018.

The industry's responsiveness remains the strongest driver of trust over the four-year research program, with Australians agreeing that the Australian egg industry listens to and respects the community.

This was shown in the latest research findings where overall trust in the industry increased from 53 percent in 2018 to 63 percent in 2021, with 65 percent of Australians specifically expressing trust in the egg industry to act responsibly.

Australian Eggs managing director Rowan McMonnies said, "Our annual Sustainability Framework Report remains a key vehicle for industry transparency and is a formal demonstration of how, as an industry, we continue to address community priorities and meet the expectations of our community."

The Australian Eggs sustainability framework examines the relationship between the Australian public and the egg industry, through an annual community survey by Voconiq, which builds on three years of previous CSIRO research.

The community survey explores the current position of the egg industry within the Australian community, addressing key points including the lives of people, animal welfare, environmental impact and economic viability of the egg industry, with the results being presented in a report as part of an annual cycle.

"The report closes the loop on the community engagement process," Mr McMonnies said.

"Having listened to community priorities, we then demonstrate how the industry is responding to progress these important issues.

"For instance, food safety has always been the primary focus of egg farmers and it's pleasing that the Australian public's confidence in the industry is improving, with the community research showing that seven in 10 Australians are more confident in egg food safety than they used to be.

"To ensure this continues to improve, the Australian egg industry is investing in research and resources to make eggs even safer."

A key element of this is traceability, which allows food safety issues such as salmonella to be identified and managed out of the food system promptly.

"While most eggs consumed by the public are already the subject of effective traceability systems, there remains an opportunity to increase the cover-

age of this process," Mr McMonnies said.

"In response, Australian Eggs has been developing a traceability solution for the egg industry based on the best systems currently available.

"This robust traceability solution will provide farms that do not currently have systems in place with greater transparency over egg movements within their operations and provide stronger assurances on food safety and quality."

Days Eggs in South Australia is one of the largest producers in the country with around 450,000 eggs laid per day.

Days Eggs pride themselves on innovation, quality and their relentless pursuit of hen welfare and have also been early adopters of comprehensive traceability systems to help protect the community, hens and staff.

Days Eggs managing director Dion Andary said, "Traceability is one of the most critical business processes – without it, the business is operating blind."

"Traceability provides full transparency and provides the peace of mind that any health or quality issues with any of their eggs or hens can be rectified immediately, greatly reducing potential impacts."

Mr Andary said he believes outside of the easy to measure financial benefits, the most important benefit of traceability is trust.

"The importance of being able to trace an egg back to the date of lay, date of sale and specific shed, and the role that plays in ensuring trust, cannot be overstated," Mr Andary said.

"Customers can trust that we have the processes in place to provide safe eggs, our staff can trust us that we have the mechanisms in place to support them in any issues, and we can trust our team that the correct processes are being followed."

The full Sustainability Framework Report 2022 is available for download at australianeggs.org.au/what-we-do/sustainable-production/sustainability-report



Days Eggs managing director Dion Andary.



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VALTON FEEDING SOLUTIONS

Aerator upgrade for Bush's Proteins

BUSH'S Proteins – the trading name of AJ Bush and Sons – operates the largest capacity rendering facility in Australia at its processing facility in Bromelton in Queensland, where it manufactures nutrient-rich protein meals and tallows.

The factory effluent is rich in organic material which is treated via anaerobic digestion and aerobic treatment processes, with treated water used to irrigate pasture surrounding their facility.

The options

When plant engineering manager Byron Boyers wanted to upgrade his pond aeration system to a better and safer system, he spoke to Hydro Innovations about their Echo-Storm Venturi Aerator from Gorman-Rupp.

These aerators use a self-priming pump to draw wa-

ter from the source to be treated.

It is then pumped at pressure through the Echo-Storm, which adds dissolved oxygen to the water and 'conditions' it as it accelerates at more than 16m/sec through the unit.

The benefits of Echo-Storm bank-mounted aerators

Mr Boyers was keen to try a unit because of the much easier and safer access to the Echo-Storm for maintenance, as all required equipment can be mounted on the pond bank.

It helped that the company already had a self-priming Gorman-Rupp pump that he could utilise for the project.

His effluent pond is 200mx40mx4m deep with an inflow of two megalitres per day.

The solution and result

Mr Boyers purchased a 4" VA4-550 Echo-Storm unit for the job.

He hooked the unit up to his Gorman-Rupp pump and designed a floating suction arrangement to keep the suction line off the bottom, then fired it up.

He took a photo of the unit as it started and was so impressed with the results only six hours later that he took another photo

to send to Darren Jones of Hydro Innovations.

Echo-Storm units are available in four sizes – 2", 3", 4" and 6" – and can improve safety and reliability as well as reduce maintenance costs when compared with other aeration systems.

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



Byron Boyers was so impressed with the results only six hours after install that he took a photo and sent it to Darren Jones of Hydro Innovations.



Bush's Proteins plant engineering manager Byron Boyers hooked the unit up to the Gorman-Rupp pump and started it.

"Don't be fooled by cheap imitations. Insist on genuine, rugged, dependable Gorman-Rupp brand"

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Farmers need input costs surety

QUEENSLAND Farmers' Federation led a delegation of members to meet with federal Minister for Agriculture David Littleproud recently to discuss the sustainability of the agriculture sector in the face of spiralling input costs and concerns regarding input supply security.

With diesel prices hitting record levels and farm input costs across the board rising significantly, QFF and its member organisations were pleased to take the opportunity to meet with Mr Littleproud to not only voice their concerns but to also initiate discussion

on how industry and government can work closely together to find solutions.

QFF chief executive officer Jo Sheppard said that member feedback clearly demonstrated the growing concern of farmers who cannot continue to bear the brunt of increasing input costs.

"Fuel, fertiliser, chemicals and many other inputs are sourced from overseas," Ms Sheppard said.

"Over the past two years, we have seen the costs of these increase by in some cases 150 percent.

"Most consumers have not yet seen the impact of this as farmers have

absorbed many of these price increases, however this is not sustainable.

"This latest increase in fuel prices will have an impact on every aspect of production and is compounding the problem of already rising input costs."

Farmers are concerned with not only the price hikes but with the future security of supply of many key farm inputs also.

"Over the past few years, we have seen massive increases in the costs of fuel, fertilisers and electricity to name a few, with no requisite rise in farm gate prices or retail," Ms Sheppard said.

"Our farmers have been absorbing the bulk of these costs.

"It's simply not sustainable.

"If you accept that Australia runs on trucks, it's easy to see how these fuel spikes are going to play out.

"Every delivery of fertiliser, seed, stock and such will increase.

"On farm, the costs of operating machinery increases.

"And, getting produce to retailers and consumer increases too.

"We are all being impacted by the increased cost of fuel."

QFF is calling on the

Federal Government to work with industry to find and progress ways to provide farmers with surety and security of supply of fuel and other volatile inputs.

"There are many variables in farming, but the sector has been innovating for many years to build its capacity to manage risk," Ms Sheppard said.

"A reliable cost-effective supply chain is critical to the future of agriculture.

"We need the Federal Government to work closely with industry to help shore up the supply of fuel and other key inputs, so that farmers have a secure and stable environment to operate in, costs can be contained, and we can continue to do what our farming sector does best in producing high quality, food, fibre and foliage.

"QFF and its members appreciated the opportunity to meet with Minister Littleproud to raise these concerns and discuss several ways forward.

"And while it was heartening to hear the Federal Government believes that fuel supply is secure and prices will stabilise, QFF will be continuing discussions with the Minister's office to progress initiatives that will support the development of input cost management issues and security of input supply security on other items such as fertiliser as a matter of urgency."



Woolworths has changed the name of its products to no longer use the Russian 'Kiev' spelling.

Woolworths Chicken Kyiv

TAKING a stance on the Russian-Ukraine conflict, Woolworths has changed the name of some products to no longer use the Russian spelling.

Recently announced and to recognise the true name of the Ukrainian capital city, Woolworths own brand would be changed to 'Chicken Kyiv'.

The supermarket giant discussed the matter with the Australian Federation of Ukrainian Organisations and felt it was a small but meaningful change to stand in solidarity with Ukrainians living in Australia.

A Woolworths spokesperson said,

"Kyiv is the globally recognised name of the capital, so it's only appropriate to reflect that in the labelling of the product."

Australian Federation of Ukrainian Organisations chairman Stefan Romaniw said the local action on the global issue showed respect for Australian-Ukrainians.

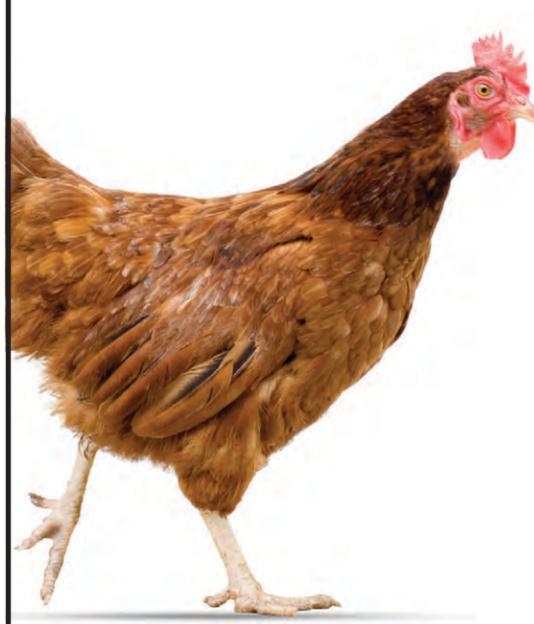
"Woolworths gets it - Ukraine is different to Russia," Mr Romaniw said.

"Ukraine has its own language, its own culture, its own history.

"That's why using the Russian spelling for the Ukrainian capital Kyiv has always offended Ukrainians."



"Over the past few years, we have seen massive increases in the costs of fuel, fertilisers and electricity to name a few, with no requisite rise in farm gate prices or retail," Jo Sheppard said.



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NUTRITION SOLUTIONS TO ENHANCE PERFORMANCE

Raising the bar for salmonella control with Poulvac ST

SALMONELLOSIS is a disease of major importance to the poultry industry, not only because of the impact on growth and production in broilers and layers but also the implication to public health in transfer of salmonellosis from the food chain to the human population.

While many different measures have been recommended on poultry farms, vaccination with live-attenuated vaccines have a central role in the reduction of salmonella in commercial operations, by increasing immunity of the birds and preventing transmission of salmonella.

It is impossible to stop all of the factors that cause salmonellosis, though it is possible to help protect against both the disease and produc-

tivity loss by the adoption of a well-managed vaccination plan.

The goals of vaccination are to reduce horizontal and vertical transmission and reduce salmonella bacterial load in the environment.

Zoetis poultry technical services manager Dr Branko Karaconji said, "Poulvac ST can form an important part of your salmonella control program."

"It is a live salmonella typhimurium vaccine for active immunisation of chickens, as an aid in the prevention of salmonella typhimurium colonisation of internal organs, including intestines and caeca," Dr Karaconji said.

Poulvac ST vaccine is safe and efficacious in helping to build immunity in chickens.

The advantage of this live-attenuated vaccine is its use by mass administration – spray or drinking water – to stimulate a strong long-lasting immune response.

Salmonella typhimurium was first isolated from pig intestines in 1886.

The salmonella name is derived from the name of the US veterinarian Daniel E Salmon who isolated the bacterium from pigs.

Salmonella also causes disease and mortality in poultry and non-avian species.

The clinical signs and lesions of ST present themselves as an infection, with high chick morbidity and high mortality, and include symptoms such as pasted vent, diarrhoea, lethargy, anorexia, conjunctivitis, arthritis and indications of septicaemia.

In older birds there may be hardly any clinical signs, however those birds become carriers of salmonella typhimurium and will spread bacteria and contaminate the egg surface.

Pathology findings are related to enteritis, peritonitis, pericarditis, cheesy caeca, unabsorbed yolk sacs, and necrotic intestinal and liver lesions.

In commercial production, the major problem with salmonella is related to the possibility of colonisation without clinical signs and disease manifestations.

Salmonella can infect ovaries and migrate through eggshell pores and membranes.

That is why vertical transmission of salmonella with egg yolk and albumen contamination is a major problem.

Salmonella is mostly introduced into flocks and farms with contaminated feed and water.

Salmonella infection may be also established in the rodent populations from which water and feed are contaminated.

Another factor to be taken into consideration related to salmonella introduction in poultry flocks and farms is the move to free range production, where increased bacterial challenges occur by feral birds, together with the other recognised risk factors.

Many different antibiotics are used for the treatment of salmonellosis.

Antibiotics are effective but will not eliminate salmonella totally.

Resistance to antibiotics used as a therapy in order to control salmonellosis has been constantly in-

creasing, in large part due to past excessive use of antibiotics.

The best tools to control salmonellosis are preventative tools related to biosecurity, management practises and vaccination.

Use of vaccines against salmonella typhimurium stimulate the immune response and the reduce severity and duration of naturally occurring disease caused by salmonella typhimurium.

It is impossible to stop all of the factors that cause salmonellosis – however, it is possible to help protect against both the disease and productivity loss.

Vaccination goals are to reduce horizontal and vertical transmission and reduce salmonella bacterial load in the environment.

Poulvac ST may be ap-

plied to chicks from one day of age by the spraying vaccination method, and the second vaccination two weeks later via drinking water.

The vaccine initiates a self-limiting systemic infection that does not persist in birds after 14 days post vaccination.

It also does not persist in the environment after 14 days post vaccination and is safe for birds and other non-target animals.

The vaccine does not revert to being infectious and can be differentiated in diagnostic laboratory from field strains.

Poulvac ST is presented as a refrigerated vaccine stored at 2-8C in a pack of 10 vials, each containing 5000 doses.

For further information, contact ProductSupport.au@Zoetis.com or 1800 814 883.



Aussie's Admiral steamers sanitise and clean at the same time!

Efficient hygienic cleaning

PRESSURE cleaners and steam cleaners are widely used in poultry farms around Australia.

Producers understand that high pressure cleaning must be fast, efficient and use less water.

Aussie Pumps has developed a range of high-pressure steam cleaners, with performance way above that produced by European machines.

Aussie Pumps – Australia's major manufacturer of high-pressure water blasters – has been working with producers for the past 20 years.

This has led to the development of products that are particularly suitable for shed washdown.

Many machines sold decades ago are still working in farms and sheds around Australia and do a great job every day.

Some farmers like the idea of being able to use hot water or even steam.

They enjoy the concept of combined cleaning and sterilising capability.

Killing potential virus germs in any intense animal husbandry applications is considered essential.

Aussie's new Admiral 4000 cleaner is a 4000psi steam cleaner with increased capability that can produce 130C.

The Admiral can save time, water and electricity in the cleaning process.

The 4000psi capability means it can move waste and debris fast, creating huge time savings for producers.

That combination of high pressure and 15LPM flow

gets the job done faster.

Aussie's hot water machines only come with slow-speed pump and motor combinations running at 1450rpm – they provide for a longer and trouble-free operating life.

The machines have four-pole 415V or 240V motors, depending on the size.

Pistons are solid ceramic and pumps are all top-quality ISO 9001 – not knock-offs.

They all come with stainless-steel covers, replacing the traditional European plastic cover.

A steel chassis with bumper is stronger and longer lasting than polypropylene and is suitable for tough conditions.

Four wheels, not castors, are included for ease of movement on uneven surfaces.

The new Admiral steamer is way ahead of some imports.

It features a wide range of protection devices that are aimed at providing the maximum convenience for the operator.

These include low-water cut-out warning, safety thermostat, timed total stop with automatic shut-down, micro-leak detection, a low fuel sensor with a warning light and 18 litre diesel fuel tank.

The whole idea is to learn from the industry and ask growers what they need.

The ultimate desire is to give them something better than they could imagine.

For further information, including information on Aussie's free safety training program, visit aussie pumps.com.au

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¹Data on file, Study report No. 04-16-7ADMI

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Supply farmers warned of likely changes for the Baiada Beresfield plant.

Pressure for chicken meat industry

AS the Australian Competition and Consumer Commission observed in a December 2020 report, pressures face the chicken meat industry with processing dominated by two companies – the stock market listed Inghams and the privately owned Baiada, owner of the Steggle brand and processing

plant at Beresfield. Currently under a cloud, Baiada said no decision had been made on the Beresfield plant, but in a January letter warning supply farmer of likely changes, 'total closure' was the first of four options listed. Though Baiada has won approval for a new \$200 million plant at Tamworth – which could triple the

existing maximum output and add another 682 jobs to a current workforce of 494 – the Meat Workers Union said it was confident the Beresfield plant would not close any time soon. With plants at Hanwood and Tamworth, Baiada quotes government figures showing chicken as the most consumed meat in

Australia, with consumption rising by 5 percent a year over the past decade. With this growth in mind, the fears for Beresfield stem from the greater capacity of the new Tamworth plant, indicating a potential cutback elsewhere. While the ACCC views Beresfield's future as an internal company matter,

its December 2020 report acknowledged concerns for chicken farmers possibly facing unfair contract terms in relations with the big processing companies. With the nominal expiry date of an enterprise agreement in September, the future is uncertain for the 1000 Beresfield plant employees and supplying farmers.

Crude protein reductions in broiler diets

Major factor in quest for sustainable production

A STUDY, 'A comparison of wheat and sorghum-based diets with two crude protein levels on the performance of broiler chickens', carried out by Shemil Macelline, Peter Chrystal, Mehdi Toghiani, Shiva Greenhalgh, Peter Selle and Sonia Liu, was presented recently at the 2022 Australian Poultry Science Symposium.

Wheat and sorghum are the two major feed grains used in Australia for broiler diets, however wheat is more common and is usually considered better quality than sorghum.

The local chicken meat industry may have to increase by 60 percent to meet demand in 2050, so strategies are needed to promote sustainable chicken-meat production to meet this anticipated demand.

Crude protein reductions in broiler diets could be a major factor in



Shemil P Macelline

the quest for sustainable production.

Reduced-CP diets have the potential to lower nitrogen excretion and ammonia emissions, improve litter quality and bird welfare, and reduce our dependence on imported soybean meal.

However, growth performance of broiler chickens is often compromised by reductions in dietary CP, and the growth response to the reduction of dietary protein was inconsistent among different feed grains.

Wheat-based reduced-CP diets depressed broiler growth performance, while in contrast maize-based diets performed well when dietary CP was reduced.

The protein structure and functional properties are similar in sorghum in comparison to maize, and sorghum contains less soluble non-starch polysaccharides and relatively slow starch digestion rate than wheat.

Therefore, the present study was designed to compare wheat and sorghum-based diets in the context of reduced CP diets.

A total of 392 off-sex male Ross 308 broilers were randomly distributed into 28 floor pens with 14 birds per pen and seven replicates for each treatment from 14-35 days post-hatch.

The arrangement of dietary treatments is shown in Table 1 and their composition and nutrient specifications are shown in Table 2.

In the present study, dietary CP reduction compromised weight gain by 8.98 percent (2292 versus 2086g/bird; $P < 0.001$) and feed intake by 2.72 percent (3157 versus 3071; $P = 0.031$) regardless of the feed grain.

Sorghum-based diets

supported higher weight gains than wheat-based diets by 4.84 percent (2232 versus 2129g/bird; $P = 0.002$) independent to dietary crude protein reduction.

As shown in Figure 1, a significant treatment interaction ($P = 0.033$) was observed for FCR as broilers offered 210g/kg CP wheat and sorghum-based diets had statistically similar feed conversion ratios.

In contrast, at 170g/kg CP, the sorghum-based diet supported a better FCR than wheat by 4.90 percent (1.437 versus 1.511).

Therefore, reducing dietary CP from 210 to 170g/kg compromised FCR in wheat and sorghum-based diets by 8.94 percent and 4.97 percent respectively.

Dietary CP reductions increased relative fat-pad weights by 16.7 percent (10.35 versus 8.34g/kg/bird, $P = 0.010$) and sorghum-based diets generated heavier fat-pad weights than wheat by 31.8 percent (10.99 versus 8.34g/kg/bird, $P < 0.001$).

The interaction between dietary CP and feed grain for FCR suggests that sorghum is superior to wheat as the basis of reduced-CP broiler diets.

Alternatively, sorghum generated 42.1 percent (12.15 versus 8.55g/kg) heavier fat-pad weights than broilers offered 170g/kg CP wheat-based diets, which is disadvantageous.

These conflicting outcomes present an obstacle to the development of reduced-CP broiler diets. In reduced-CP diets, wheat has a lesser propensity to increase abdominal fat-pad weights and by extension overall fat deposition than maize and, in the present study, sorghum.

It is probably salient that the starch digestion rate of wheat is more rapid than maize or sorghum, which has been demonstrated under in vitro and in vivo conditions.

It appears that slowly digestible maize and sorghum starch and the more gradual and sustained intestinal uptakes of glucose promotes increased fat deposition via de novo lipogenesis.

Excess glucose may be stored as glycogen in liver and muscle but the

capacity of avian species to store glycogen in muscle is limited.

Once glycogen stores are saturated, glucose is effectively converted into fat by de novo lipogenesis in the liver.

On the other hand, glucose from rapidly digestible wheat starch may be disposed of by direct oxidation.

The wheat-based 170g/kg CP diet contained substantially more non-bound amino acids (51.4 versus 37.2g/kg) than the corresponding sorghum-based diet.

The genesis of this difference was simply because the protein content of wheat exceeded that of sorghum.

Non-bound amino acids are more rapidly absorbed than protein-bound amino acids and it follows that this difference could trigger post-enteral amino acid imbalances, resulting in the deamination of surplus amino acids and excretion of uric acid – a process that requires energy.

The balance between non-bound and protein-bound amino acids in reduced-CP diets may be pivotal and a point may be reached where non-bound amino acid inclusions become excessive and compromise performance.

In the present study, increasing dietary non-bound amino acid inclusions were associated with compromised FCR in a quadratic manner ($r = 0.882$, $P < 0.001$), as shown in Figure 2.

In conclusion, broiler responses to wheat and sorghum-based diets containing 170g/kg CP were divergent in that sorghum generated better efficiency of feed conversion but somewhat paradoxically, greater fat deposition.

In this and other comparative studies, the impact that the feed grain selected as the basis of a reduced-CP diets has on broiler performance is of tremendous importance.

The genesis of these differences between feed grains appears to be related to both starch properties and protein contents, which dictate the extent of non-bound amino acid inclusions.

A better comprehension of both factors is needed if reduced-CP broiler diets are to be developed successfully.

Shemil Macelline

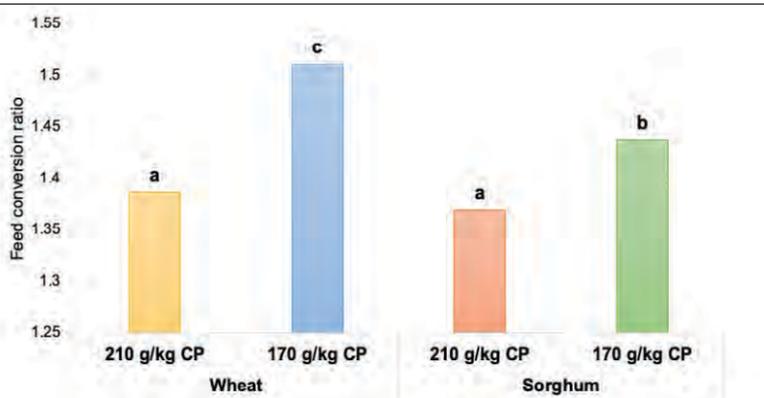


Figure 1. A significant treatment interaction of feed grain and dietary crude protein concentration on feed conversion ratio of broiler chickens in the present study ($P < 0.001$).

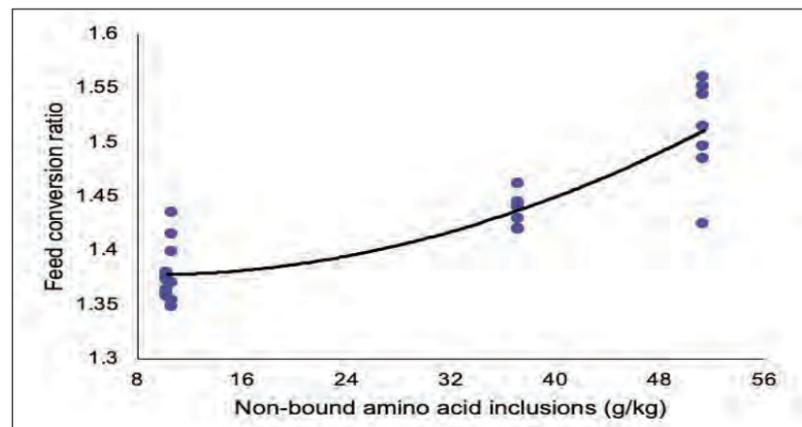


Figure 2. Quadratic relationship ($r = 0.882$; $P < 0.001$) between dietary non-bound amino acid inclusions and FCR in broiler chickens ($y = 1.383 - 0.001 \cdot \text{NBA} + 0.00007263 \cdot \text{NBA}^2$).

Treatment	Dietary crude protein concentration (g/kg)	Feed grain used
1A	210	Wheat
2B	170	Wheat
3C	210	Sorghum
4D	170	Sorghum

Table 1. Experimental design in the present study.

Feed ingredient (g/kg)	210 g/kg crude protein		170 g/kg crude protein	
	Wheat	Sorghum	Wheat	Sorghum
Wheat	674	-	877	-
Sorghum	-	624	-	789
Soybean meal	225	275	-	102
Soy oil	43.9	45.1	12.3	19.6
<i>l</i> -lysine HCl	4.20	3.55	10.9	8.72
<i>d,l</i> -methionine	2.68	3.21	4.31	4.66
<i>l</i> -threonine	1.68	1.35	4.53	3.60
<i>l</i> -tryptophan	-	-	0.65	0.24
<i>l</i> -valine	0.90	0.50	4.30	3.17
<i>l</i> -arginine	0.69	0.56	6.77	5.52
<i>l</i> -histidine	-	-	1.25	1.04
<i>l</i> -tyrosine	-	-	2.14	0.59
<i>l</i> -isoleucine	0.44	0.13	3.82	2.82
<i>l</i> -leucine	-	-	4.84	-
<i>l</i> -phenylalanine	-	-	2.53	1.26
Glycine	0.13	0.98	5.57	5.63
Other ingredients	46.9	42.8	56.7	51.8
Total non-bound amino acids	10.7	10.3	51.4	37.2
Nutrient specifications				
Energy (MJ/kg)	13.0	13.0	13.0	13.0
Crude protein	210	207	170	170
Starch	421	399	546	503
Fat	61.4	72.5	30.5	50.4
Calcium	8.70	8.70	8.70	8.70
Available phosphorous	4.35	4.35	4.35	4.35
SID lysine	11.0	11.0	11.0	11.0
SID methionine	5.21	5.77	5.89	6.45
SID threonine	7.26	7.26	7.26	7.26

Table 2. Composition and nutrient specification of experimental diets.

Low-cost freezing method safeguards poultry genetics

A STUDY carried out by the Roslin Institute has found that low-cost freezing technology can safeguard the genetic diversity of indigenous chickens in low and middle-income countries.

Chicks have been born from surrogate chickens that received formerly frozen reproductive cells extracted from embryos derived entirely from donor chickens.

The cryopreservation method could help preserve the 1600 local chicken breeds that are an important source of income for smallholder farmers in tropical countries.

It could also help secure poultry genes from indigenous breeds for efforts to develop birds with climate resilience or disease resistance and to ensure food production.

The Roslin Institute and Centre for Tropical Livestock Genetics and Health postdoctoral research fellow Dr Tunjun Hu said, "This simple, low-cost and low-tech biobanking method will be beneficial to poultry breeders worldwide, big or small."

"It will reduce the cost of maintaining livestock for breeding and will benefit the welfare

of chickens by reducing the number of birds in research facilities."

Simple method

A team from the Roslin Institute and CTLGH – with their commercial partner Cobb Europe – validated a simple technique in which chicken reproductive organs were extracted from embryos, pooled by sex and frozen.

After being thawed, the reproductive cells were injected into sterile surrogate embryos.

Male reproductive cells were injected into male embryos and female cells into female embryos.

Research using fluorescent proteins to label the donors' cells and a method to control the reproductive genes carried by both parents – known as sire dam surrogate mating – demonstrated that chicks were derived entirely from their donor parents.

Experiments showed that freezing the entire reproductive organ was more effective than freezing separated reproductive cells.

The Roslin Institute and CTLGH program leader Dr Mike McGrew said that while cryopreservation of reproductive cells from adult livestock is routine, it is problematic

in poultry, and in vitro alternatives are technically demanding and expensive.

This simple technique does not require cells to be created in vitro in the laboratory, making it easier and cheaper to preserve chickens, benefiting both commercial and smallholder farmers.

CTLGH director Professor Appolinaire Djikeng said, "The chicken is a key animal for millions of smallholder farmers in low and middle-income countries."

"This simple and low-cost method – developed through a CTLGH collaboration between Roslin, ILRI and Cobb Europe – will enable conservation of chicken diversity, to ensure farmers can breed birds that are resilient to extreme climates, and a reliable source of food and income for farming families."

The study is published in the journal *eLife* and was funded by the Bill and Melinda Gates Foundation, the UK Foreign, Commonwealth and Development Office under the auspices of CTLGH, and the National Centre for the Replacement, Refinement and Reduction of Animals in Research.

Roadmap to put Australian protein on global map

A NEW roadmap by CSIRO, Australia's national science agency, shows how Australia can serve up a wider range of high-quality protein products to feed the world's growing population and help capture a \$13 billion market opportunity for all types of protein.

Released recently, the report 'Protein: A roadmap for unlocking technology-led growth opportunities for Australia' also outlines how Australia could create up to 10,000 jobs and become a global leader.

With an expected two billion extra people on the planet to feed by 2050, coupled with changing tastes and dietary preferences, the world is going to need to produce more protein, more sustainably and from more sources.

Growth opportunities include new plant-based products, turning lesser cuts of red meat into value-added protein powders and nutraceuticals, developing higher-protein and better tasting legume crops, creating a new sustainable industry in Australian white-flesh fish, and exploring non-traditional forms of protein such as cultivated meat and edible insects.

CSIRO chief executive Dr Larry Marshall said Australia's strong history and global reputation in

agriculture and food present a big opportunity for future growth.

"As protein demand grows and new consumer trends emerge, solutions from science can help create new markets and complement our existing globally competitive traditional markets."

"This will help shift Australia's reputation from being the world's food bowl of commodities to becoming a global delicatessen of unique higher value exports," Dr Marshall said.

"CSIRO's Future Protein Mission recognises the scale of this challenge and brings together a wide network of partners with the latest innovative technology to seize this opportunity for a resilient and sustainable food system."

"We can supercharge growth in our traditional protein industries by harnessing technologies such as digital traceability and integrity systems that enhance the premium status of Australian red meat, and grow new complementary protein markets through techniques similar to precision fermentation to generate a suite of new Australian products."

The roadmap highlights how protein demand can only be met by bringing together animal, plant and non-traditional pro-

tein production systems.

Food and agribusiness growth centre Food Innovation Australia Limited managing director Dr Mirjana Prica said the global demand for protein represents a significant export opportunity for all of Australia's protein players.

"Consumer demand is increasing for all protein sources," Dr Prica said.

"Australia has a real opportunity to have a thriving local food manufacturing sector, while becoming a leading exporter in value-added traditional, plant and novel protein products."

"Building domestic capacity and infrastructure to not only tap but to build scale for the pleth-

ora of protein opportunities is critical if we are to switch from importing ingredients to producing our own domestically."

CSIRO developed the roadmap drawing on its deep and broad connections in the sector to drive a conversation about how to grow this protein opportunity for national benefit, underpinned by the right infrastructure and technology.

The roadmap was developed in consultation with key stakeholders in government, industry and the research sector across Australia's agriculture, food and innovation system.

Access the full report at csiro.au/protein-roadmap

Size of the prize for Australian protein by 2030



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65 million tonnes total domestic and export demand



8.65 million tonnes additional demand compared to 2018

Prize size for Australian protein by 2030.



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France to cull millions of poultry due to AI

FRANCE will slaughter several million poultry birds in the second mass cull of flocks as the country tries to contain outbreaks of avian influenza, the country's agriculture ministry said recently. After a wave of cases in the southwest led to the culling of around 4 million animals, the ministry said the disease had spread rapidly since February in the Pays de la Loire region, another major poultry zone further up France's west coast.

The authorities had slaughtered 1.2 million birds in the region to date and were expected to cull another 3 million, as they adopted the same strategy as the southwest by emptying poultry farms in areas near outbreaks. Avian influenza is often carried by wild birds in autumn and winter. The highly contagious H5N1 strain has spread quickly in Europe in recent months, prompting massive culls in several countries.

Avian influenza can-

not be passed on to humans through the eating of poultry products, though there have been occasional cases of humans catching strains of the disease.

As the Pays de la Loire region is a major supplier of chicks, the authorities will grant an exemption to allow reproduction farms in high-risk zones to continue supplying the rest of the country, notably the southwest that is about to resume breeding after its avian influenza lockdown.

Avian influenza outbreaks have added to pressure on poultry producers who are facing a jump in feed costs due to record grain prices, partly linked to Russia's invasion of Ukraine.

France and the European Union have promised special aid for livestock sectors.



KFC has paused investment in Russia and suspended operations of its 70 company-owned restaurants. Photo: Hello I'm Nik

KFC parent Yum halts in Russia

YUM Brands Inc, the parent company of fried chicken chain KFC, said it was pausing investment in Russia, a key market that helped the brand achieve record development last year.

Yum also said it was suspending operations of its 70 KFC company-owned restaurants in the country and finalising an agreement to suspend all Pizza Hut restaurant operations in Russia, in partnership with its master franchisee.

Yum - which has at

least 1000 KFC and 50 Pizza Hut locations in Russia that are nearly all independent franchisees - said in a post on its website recently that it had "suspended all investment and restaurant development in Russia while we continue to assess additional options."

The restaurants are owned and operated independently through franchise agreements, meaning Yum does not have as much control as if it ran them itself but also has less exposure to financial

and operational risks.

Executives said during an earnings call on February 9 that 2021 was a record year of development for KFC, led by new restaurants opening in China, India and Russia. Overall, KFC opened more than 2400 gross units internationally in 2021.

In Russia, the company was opening about 100 new restaurants annually and had expected to continue a similar expansion strategy going forward.

Many companies have

begun to pull their business out of Russia amid sanctions and outrage over the invasion of Ukraine.

Calls for more companies to follow suit are growing.

McDonald's said it would temporarily close all 847 of its restaurants in Russia, including its iconic Pushkin Square location, increasing pressure on other global brands to pause operations in the country following the invasion of Ukraine.

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