Australian Pork NEWSPAPER

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Ham considered 'not healthy' for children by WA Department of Health.

Ham restricted in WA schools

CONFUSING parents, Western Australia has recently introduced a restriction on ham in school canteens.

After a reconfiguration of its system for classifying food and drink in public schools, WA Department of Health now uses a traffic light approach, assigning green, amber or red colours to these items.

Each colour is associated with restrictions on how food and drinks can be sold:

- Green items must account for at least 60 percent of items on a menu
- Amber items must account for less than 40 percent of items on a menu
- Red items cannot be on the menu.

Ham and other processed red meats have been moved from an 'amber' label to a 'red'.

However, the new guidelines allow ham to be sold as if it was an amber item for two days per week if ham was already on the canteen's menu prior to the reconfiguration.

A fact sheet released by the department states the reclassification of some foods from amber to red was designed to align schools Australian Dietary Guidelines, the Australian curriculum and a Federal Government health council guide to reduce children's exposure to unhealthy food and drink.

According to the department, while ham is not inherently considered junk food – being a source of protein and many other nutrients – certain types of ham products, especially highly processed or cured hams, are less healthy options due to several factors.

Many commercially available highly processed and cured hams can be high in sodium, which is salt.

On average, Australian children consume more sodium than the recommended upper limit of 600mg a day for children aged four to eight and 800mg a day for those aged nine to 13.

Some processed hams may contain additives, preservatives and flavour-enhancers that should be limited.

And, while ham is a good source of protein, certain cuts can be higher in saturated fat.

Any ham sold in canteens under the new rules (where ham is treated as an 'amber' food until the canteen menu changes) must have less than 3g of saturated fat per 100g.

Don't get ham-bushed, celebrate our pork

AUSTRALIAN Pork®

Point of View

by **MARGO ANDRAE**
CEO

EVERY year, as school time approaches, the great lunchbox debate seems to kick-off and taking centre stage this year… our beloved ham has once again been thrown into the spotlight!

The discussions often revolve around its nutritional benefits and, ironically, why ham is found on the nutritional blacklist for some.

I feel it's essential to address the nuanced conversation surrounding ham, recognising its positives while also acknowledging the concerns that prompt discussion on this much-loved deli favourite and lunchtime staple.

Accurate information about ham's role as part of a balanced diet must be considered when these claims make national headlines.

While ham does boast essential nutrients, amino acids and protein, moderation remains key, as is the case with all food items that form part of a well-balanced diet.

Promoting a mindful approach to dietary choices and fostering healthy eating habits among school-aged children and adults should form part of the great debate when consuming ham and processed meats.

For parents navigating the challenges of school lunchboxes, incorporating ham offers both nutritious and convenient options for busy parents.

Ham is a nutritious protein that keeps little tummies fuller for longer, bringing peace-of-mind that their kids are nourished for classroom learning.

Encouraging conversations about ham within the school community can further enhance the understanding of deli meats, particularly smallgoods made from Australian pork.

Sharing insights on the nutritional value of ham and exchanging ideas for school lunches can create a supportive environment for parents who are juggling fussy eaters while trying to make informed dietary choices for their children.

At Australian Pork Limited, we continue our focus on building awareness around the quality and diversity of Australian smallgoods and products made from pork.

Emphasising the diversity of smallgoods

☛ continued P2

This year, APL is widening the discussion to raise awareness on all smallgoods made from Aussie pork.

A new campaign will launch in May prompting consumers to question why they aren't thinking of pork for dinner tonight, aiming to get more pork on Aussie forks.

Australian Pork NEWSPAPER

Pork Industry Calendar of Events

2024

MAR 18-19 – Animal AgTech Innovation Summit – San Francisco, USA. https://animalagtech.com/

APR 24-26 – International Poultry & Pig Show – Nagoya City, Japan. https://ipps.gr.jp/en/

MAY 13-15 – Food with Purpose 2024, A PIX, AMC & APL Event – Gold Coast, Australia. https://pix.au/

JUN 4-7 – IPVS and ESPHM – Leipzig, Germany. https://www.ipvs2024.com/

JUN 5-7 – World Pork Expo – Des Moines, Iowa, USA. https://www.worldpork.org/

JUN 19-20 – Ontario Pork Congress – Ontario, Canada. https://www.porkcongress.on.ca/

JUL 7-10 – National Pork Industry Conference – Wisconsin Dells, USA. https://www.porkconference.com/

AUG 17-18 – Kingaroy BaconFest 2024 – Kingaroy, Australia. https://www.kingaroybaconfest.com.au/

OCT 25-27 – The 13th Leman China Swine Conference & World Swine Industry Expo – Chengdu, China. https://www.lemanchina.com/

NOV 12-15 – EuroTier 2024 – Hanover, Germany. https://www.eurotier.com/en/

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

A collaborative approach to protecting Australia from exotic pests and diseases backed by all government agriculture ministers, the National Biosecurity Strategy implementation plan has been released.

DAFF first assistant secretary for biosecurity strategy and reform Bronwen Jaggers, with retired department secretary Andrew Metcalfe.

Implementing Australia's national biosecurity strategy

THE implementation plan to assist in delivery of Australia's first National Biosecurity Strategy – a collaborative approach to protecting Australia from exotic pests and diseases backed by all government agriculture ministers – has been released.

Department of Agriculture, Fisheries and Forestry first assistant secretary for biosecurity strategy and reform Bronwen Jaggers said the implementation plan would inform the delivery of the NBS and reinforce the shared responsibility across government, industry and the community of biosecurity as a national priority.

"The implementation plan reinforces the commitments to action all agriculture ministers made under the NBS and will allow stakeholders to better understand how the strategy will progress and roll out over its 10-year life span," Ms Jaggers said.

Biosecurity is a shared national responsibility and it affects all Australians.

"A foundational element of the NBS is to ensure we build stronger partnerships between all levels of governments, industry and stakeholders to achieve the most robust biosecurity system for the country and, by providing a clear implementation plan, we are doing just that," Ms Jaggers said.

"With changing trade and travel patterns and growing biosecurity risks in our region, managing biosecurity is increasingly complex.

"But any breach of our system could have significant consequences on Australia's unique flora, fauna and way of life, as well as our agricultural sector and access to international markets.

"It is important all the key players are aligned to counter biosecurity threats.

"The implementation plan will assist and guide development of national action plans and monitor progress to ensure that rollout of the NBS supports a connected, resilient and shared national biosecurity system that protects Australia in the long-term."

Australia's federal, state and territory agricultural ministers endorsed the 10-year NBS in August 2022.

Significant effort into a collaborative approach to deliver the strategy has included focused engagement with a wide range of stakeholders across the biosecurity system, including industry, landowners and managers, environmental groups and the community.

The implementation plan has been developed in consultation with National Biosecurity Strategy implementation committee and working group, overseen by the National Biosecurity Committee.

The implementation committee and working group were established in 2023 to support the delivery of the National Implementation Plan and National Action Plan, to bring a range of commercial and technical insights to shaping and driving practical delivery of the plan.

"I would like to thank the members of the NBS implementation committee for leading development of the implementation plan, while drawing in a wide variety of new stakeholder insights into shaping where best we can target our collective efforts," Ms Jaggers said.

"It's a great reminder that biosecurity is a team sport and we achieve more by working together."

Work to deliver the first National Action Plan, including surveys, focus groups and consultation with stakeholders with relevant expertise and interest, is also underway.

A draft of the National Action Plan, comprising an initial set of actions for implementation under the strategy is planned to be released for public consultation in early 2024.

In parallel to the NBS implementation and action planning, work continues to progress on several fronts to further strengthen Australia's biosecurity system.

The National Biosecurity Strategy implementation plan can be accessed online at biosecurity.gov.au/about/national-biosecurity-committee/nbs

Don't get ham-bushed, celebrate our pork

from P1

available in Australia – prosciutto, chorizo, salami, pancetta, coppa, capocollo, ham and jamon – showcases the versatility of Australian small meat products.

By championing the varied offerings within the smallgoods category, we aim to highlight the importance of supporting local producers.

We're continuing our efforts to raise awareness on the exceptional quality of Australian-grown and locally produced pork.

Reflecting on the success of our 2023 Adelaide campaign, where we championed the reasons why consumers should seek to choose ham and bacon made with quality Australian pork, this year we're widening the discussion to raise awareness on all smallgoods made from Aussie pork.

Consumer research from the previous campaign not only reaffirmed the power of our message to buy Australian but also revealed the impact on perceptions of quality too.

We're working to spread the message of Australian grown quality, along with the unmistakable redesign of our new consumer PorkMark, which we know is easier to identify on the supermarket shelf.

The newly designed PorkMark successfully links and strengthens the goodness of Australian pork by highlighting the quality, ethical and homegrown credentials, that makes locally grown products worth their value.

So, we're delighted to announce our return to the Adelaide market with the same purpose for promoting 'true Australian quality'.

Our upcoming campaign is scheduled from March 4 to May 31, 2024 and will once again be seen around the South Australian metro area, with a multi-channel approach to ensure our message reaches far and wide.

The 'get some pork on your fork' program also currently has a new campaign in production, to be launched in late May.

This campaign will keep what Australian pork is known for – using our well-known tagline and a cheeky modern approach to humour.

The campaign will prompt consumers to question why they aren't thinking of pork for dinner tonight, aiming to get more pork on Aussie forks, and remind them that life's tastier when you get some pork on your fork.

The aim is to continue making a lasting impression among those who consume pork and supporting all Aussies to get more pork on their forks!

AUSTRALIAN PORK

Miniature NIR performs well using AusScan Online

OVER the past decade there has been an accelerating trend in the miniaturisation of near-infrared spectrometers, resulting in smaller mobile handheld devices.

At present, benchtop NIR instruments are used to assess cereal grains in feed milling operations and portable instruments are not regularly used.

This is because accurate NIRS-based predictions require quality instrumentation to generate spectra and robust prediction methods.

In the past, this was problematic for the miniaturised handheld instruments, particularly with complex calibrations such as the AusScan Online in vivo energy calibrations for cereal grains.

However, recent sensor technology, resolution and machine software deployed in some of the miniature hand-held devices have improved.

In August 2022, Hone and AusScan Online collaborated to compare the performance statistics of a FOSS Benchtop (FOSS_XDS) machine and a Hone Lab Red (HLR) handheld NIR device to predict pig faecal digestible energy content of cereal grains.

Both instruments scanned a subset of the original grain samples used to develop the AusScan Online calibrations and, using their respective software platforms, developed predictive models for the pig faecal DE content (see Table 1).

The study results indicate that it would be feasible to use a handheld device with models developed from the AusScan Online cereal grain sample set.

The performance metrics show that the HLR device can predict an approximately quantitative result (RPD >2.0 and <2.5) for faecal DE contents.

These results are promising, and it is expected that the performance statistics for the HLR will improve with the addition of the complete data set used to create the original cereal energy calibrations.

The use case should be considered when comparing the FOSS-XDS and HLR instruments, with the former only suitable for laboratory-based analysis, while the HLR is deployable outside the laboratory and could be useful for field agents in variable environmental conditions.

Australasian Pork Research Institute Limited

Instrument	Mean	Min	Max	SD[1]	SEC[2]	RSQ[3]	RPD[4]
FOSS-XDS	13.72	11.74	15.69	0.659	0.261	0.843	2.53
HLR	13.75	11.91	15.11	0.645	0.270	0.830	2.36

[1]SD = standard deviation; 2SEC = standard error of calibration; [3]RSQ = Coefficient of determination; [4]RPD = ratio of prediction

Table 1: Performance statistics for pig faecal digestible energy content models created by a benchtop (FOSS-XDS) machine and a miniature (HLR) hand held instrument.

NFF chief executive officer Tony Mahar said the suite of measures would deliver more uncertainty for farmers, more power for union bosses and a less dynamic economy for workers.

Closing Loopholes Bill backroom deal

THE National Farmers' Federation has flagged the rushed backroom deals that allowed the industrial relations reforms through recently will leave farmers to deal with legislation fraught with problems.

NFF chief executive officer Tony Mahar said the suite of measures would deliver more uncertainty for farmers, more power for union bosses and a less dynamic economy for workers.

"The government's form in scrabbling together last-minute backroom deals without proper debate and scrutiny just paves the way for poor legislation," Mr Mahar said.

"We were already worried about how rushed this legislation is and farmers' concerns simply haven't been listened to."

Mr Mahar said the NFF was still yet to hear a coherent justification for some of the changes the government was pushing through.

"The expansion of right of entry powers is a straight-up union power grab," he said.

"There's no reason to grant them more power to traipse onto farms unannounced.

"These are people's homes and there are important safety and biosecurity considerations.

"Farming is incredibly unique in terms of the seasonal volatility, remoteness and prevalence of family-run operations that impact our workforce needs.

"It's important policymakers hear directly from farmers before upending established IR rules."

Mr Mahar also pointed to changes to the definition of casual employment that would disincentivise job creation in the farm sector.

"The current system is clear and balanced," he said.

"Everyone knows what they're signing up for and whether an arrangement is casual or permanent.

"Take that clarity away and it's one more thing that will discourage a farmer from creating a new role.

"This bill is all about old-fashioned rigidity that's out of step with a modern dynamic economy.

"It ensures that the union bosses rule the roost, and it makes Australia a tougher place to create a job.

"None of that benefits Australians in the long run."

Ideal DAF system impresses Cedar Meats

CEDAR Meats is a state-of-the-art meat exporter in Victoria with a continual improvement philosophy.

They needed to upgrade their dissolved air flotation system but didn't want to go for the 'standard' offering.

They wanted a more energy efficient solution that could deliver low running costs for its lifetime.

A conventional system consists of a centrifugal pump that pulls clean effluent from the DAF tank and pushes it into a pressurised air saturation vessel.

A compressor also feeds compressed air into the same vessel and the air saturates into the effluent water.

The water is then fed back into the bottom of the DAF tank and the air comes out of the solution in the form of tiny bubbles.

These bubbles attach to fats and grease in the system and float it to the top of the tank, where it is scraped away.

The system requires a control system to combine air and water needs, and it requires regular certification of the pressure vessel.

There is also maintenance of the pump, compressor and pressure vessel to consider, along with energy consumption of both pump and compressor.

Capital costs and running costs are not cheap for this 'standard' system.

The solution

Cedar Meats chief engineer Mr Yogesh Mistry searched for a solution that didn't involve intricate and delicate control systems and ongoing WorkSafe certification for pressure vessels.

He contacted Hydro Innovations for more information on the EDUR DAF pump that he had read about.

EDUR, a German pump manufacturer since 1927, had developed a multi-stage 'multiphase' pump capable of handling a gas/liquid mixture, making it ideal as a DAF pump.

The pump draws clean effluent from the DAF tank and, at the same time, draws in atmospheric air on the suction side of the pump.

The pump sheers and mixes the air with the water and, under pressure from the multi-stage pump, air saturates into the effluent water.

The water is then pumped into the bottom of the tank where the air comes out of the solution, as it would in a conventional system.

No compressor or air saturation pressure vessel is needed.

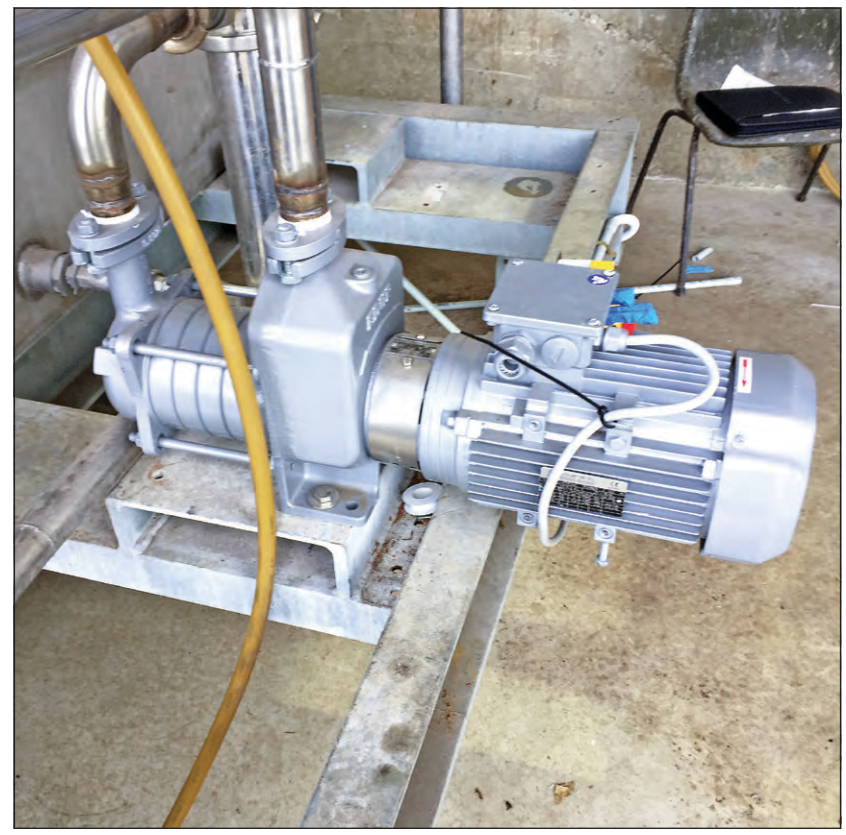
The results

Mr Mistry was impressed with the simplicity of the system and promptly arranged the purchase of an EDUR DAF pump.

He has been pleased with the positive results.

These include a higher rate of solids removed, less power used for the job which has reduced power costs, less complicated controls and a low maintenance future ahead for the system.

More information on these pumps may be obtained from Hydro Innovations at info@HydroInnovations.com.au or call us on 02 9898 1800.



Cedar Meats was impressed with the simple DAF system for its wastewater management.

Opportunities for ag STEM students

STUDENTS at all levels of education with a passion for science, technology, engineering and mathematics are benefitting from Agriculture Victoria's broadening education program.

Agriculture Victoria Research higher education manager Kendra Whiteman said a program for PhD students has been running in partnership with La Trobe University and the University of Melbourne since 2012.

"We currently have 65 PhD students under supervision as well as a large cohort of masters students who started this summer," Ms Whiteman said.

More recently, interest in the partnered PhD program has broadened.

"We are now partnering with more universities to provide industry-based PhD research and industry internship opportunities, including Federation University, Victoria University, University of Tasmania, Deakin University and RMIT," Ms Whiteman said.

"We have received excellent feedback from everyone involved in the process – students, supervisors, staff, tertiary institutions and our stakeholders."

Supervising students is mutually beneficial.

They bring fresh knowledge from their study to the research and in return gain much from working side-by-side with expert agricultural research scientists in a multi-disciplinary and hi-tech environment.

"When they finish their study, they leave us with a very practical skillset for working in applied agricultural research, with exposure to modern scientific equipment and techniques, plus professional development opportunities such as contract management and scientific communication skills," Ms Whiteman said.

"Many of the students we supervise have had the opportunity to present their research to industry stakeholders, including some national and international events, or have had their work featured in industry publications or the wider media."

Ms Whiteman said that as well as the tertiary partnerships, the popular in-house Get Into AgSTEM Program for primary and secondary students runs statewide throughout the school year.

At the AgriBio Centre for AgriBioScience in Bundoora Melbourne and across all the regional SmartFarms, Agriculture Victoria also supports secondary school work experience and provides placements for TAFE students to promote agriculture as a career of choice.

Issues of trust by association

At the heart of every industry association must be trust between it and its members. Such trust is threatened when those members who rightfully question performance are marked down.

Cant Comment
by **BRENDON CANT**

I ALWAYS enjoy Brian Ramsay's regular *Innovation Reframed* e-newsletters.

Knowing Brian since he was appointed as inaugural chief executive officer of Australian Pork Limited in 2001, I always read them with a particular interest – often wondering if any thoughts directly reflect his experiences as a leader in Australia's pork industry.

Indeed, I sometimes wonder more deeply if he's sending 'smoke signals' to the industry he once effectively directed for five or so years.

Of course, Brian is very much his own man – having successfully run his specialist Canberra-based management consultancy Inovact Consulting for almost 20 years.

His latest newsletter, titled 'Why trust in business is a trend while governments are distrusted', caught my attention, especially as the global world we currently occupy may well soon be riding yet another out of control 'Trumpian' roller-coaster into a dystopian world.

Meanwhile, faith in our 'down under' politicians and the governments of all colours and persuasions that they frequently run so badly is, I believe, at an all-time low.

The revelations (most not all that surprising) unveiled in the ABC's *Nemesis – The inside story of ambition, betrayal and revenge in the coalition years of government* are classic reminders of why governments are disdained and distrusted, as Brian states in his headline.

Anyway, enough of the politics, here is Brian's latest column, which has an obvious pork flavour up front and at the tail end – a reminder to business operators to hold their industry associations to account.

Note, the following has been edited to this publication's style and format.

I once had the opportunity to have lunch in New York with Josef Luter III, then president of Smithfield Foods Inc.

At the time, it was the largest pork processing business in the world.

I had just finished a course in Boston and we were talking about leadership.

I was intrigued to understand how he had led the company to grow so big in only two decades.

Joe was generous with his time and thoughtful in his responses.

I have never forgotten one of the insights he shared.

It was his emphasis on integrity and telling the truth.

I don't remember the exact words but I do remember the conviction he imparted.

Joe explained that daily and over time he spoke with lots of people, from staff to suppliers, customers, media and lawmakers.

His advice was that if leaders tell the truth, they don't have to remember what they told different people.

And if leaders don't tell the truth, then they get caught out and distrust follows.

I thought of my lunch with Joe when I was reading the latest findings of the *Edelman Trust Barometer* that were released at the World Economic Forum in Davos recently.

A significant global trend has consolidated – business has become firmly positioned as the most trusted institution in the world.

The annual survey of 32,000 people in 28 countries reported that most respondents have more trust in business than governments, non-governmental organisations and the media since 2021.

The trust in business has continued to strengthen.

Business is now ahead of governments in trust because it is regarded as far more competent (by 50 points) and ethical (by 30 points).

Governments languish at the bottom of the competence/ethics matrix.

A telling finding was that 60 percent of respondents believed that institutions such as government lied to them intentionally.

Lived experience today makes it hard to argue with that finding!

The opportunity is for business to lead change and innovation, but it's not something that can be done in isolation.

Partnering with government is necessary to improve policy and regulations, partnering with NGOs for upskilling and so on.

It reinforces to me that innovation with industry institutions has become more important than ever.

Individual businesses of all sizes are reluctant to allocate time away from their growth priorities.

As a rule, individual businesses don't have the same influence to pursue change at a system level as an authoritative professional business association.

What is in their control is the quality and performance of the business organisations that they choose to join as a member.

How has your industry or business association innovated with its services or business model in the past five years?

If it hasn't adapted then opportunity is being missed.

And your market correction is getting closer.

Brian also offered some intriguing insights from others on the tricky subject of trust.

Stephen Covey said, "Trust is the glue of life."

"It's the most essential ingredient in effective communication.

"It's the foundational principle that holds all relationships."

Maya Angelou said, "I've learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel."

And RM Williams said, "Trust is the easiest thing in the world to lose and the hardest thing in the world to get back."


Australian Pork Limited's inaugural chief executive officer Brian Ramsay.

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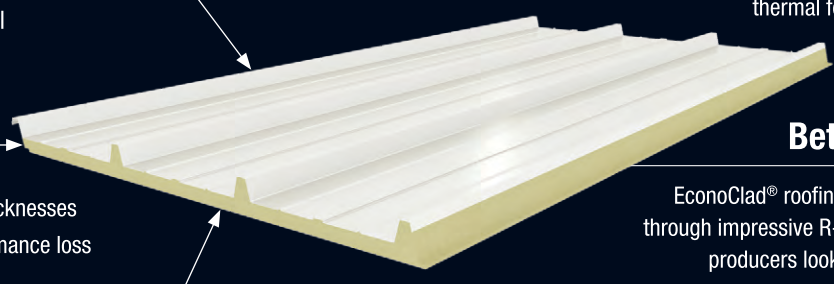

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Research projects draw to a close

A second project also close to completion, the exploring of potential benefits of short hydraulic retention time to reduce emissions from effluent.

AUSTRALIAN Pork®
Climate Friendly Farming

by **GEMMA WYBURN**

TWO projects in the climate friendly farming program are drawing to a close and are providing interesting insights for the pork industry to consider.

The first is being delivered by RMCG and was tasked with identifying and quantifying the types and amounts of single-use plastic waste generated from veterinary consumable use on farm.

The second part of the project was focused on identifying feasible options for the manufacturers, industry and individual farms to reduce or, where possible, avoid these waste streams.

The modelling done through this project has estimated that Australian pork producers use around 58 tonnes of veterinary plastic annually – which equates to 7.651 million units that are either sent to landfill, incinerated or buried on farm.

While this waste is made up of a variety of items, the majority were articles of personal protection equipment such as disposable gloves (44 percent of total units, 31 percent by weight) and insemination consumables such as catheters (40 percent of units, 41 percent by weight).

These are potentially problematic to change because they are not designed to be reused or recycled and are essential for worker and sow hygiene.

A long list of options to reduce plastic waste was produced and from that, three options were identified for deeper analysis.

These were:

- Separating and collecting bottles and syringes for recycling
- Replacing single-use gloves with certified biodegradable gloves
- Bulk insemination with an insemination gun.

More detail on the outcomes of the options analysis will be shared in a future article.

A second project also close to completion is the exploring of potential benefits of short hydraulic retention time to reduce emissions from effluent.

This is a management technique where effluent is held either underfloor or in a vessel for a shorter amount of time (less than 30 days), as opposed to the long times spent in effluent ponds.

This option could be useful for smaller piggeries or those where biogas capture isn't feasible.

The project has estimated that the approach may be suitable for half of the effluent produced by the industry if the irrigation area is available.

The approach works by disrupting methanogenesis, the last stage of anaerobic decomposition that occurs in a traditional effluent pond.

It is this stage that produces most of the emissions from a pond in the form of methane gas.

Desktop analysis has shown that SHRT systems can achieve similar reductions in emissions to using a covered anerobic pond or an engineered digestor.

Using a SHRT system will require a much larger effluent irrigation area than a traditional pond – due to having to irrigate small amounts more often – with a lot more nutrients being available owing to lower losses of nitrogen to the atmosphere.

The project has developed detailed modelling and guidance around the potential of these systems, which will provide insights and assist producers in deciding whether to trial one of these systems in their operation.

Both projects will be sharing information over the coming months, though if you would like to know more, reach out via email at gemma.wyburn@australianpork.com.au

Coming to a close, a project to identify and quantify the types and amounts of single-use plastic waste generated from veterinary consumable use on farm. Photo: Direct Action Everywhere

Spotlight on food price rises

AS people dig further into their pockets at the checkout, they've started looking for answers on why prices keep rising.

They're not the only ones, our political leaders agree it's worth investigating.

So, when the Federal Government recently announced the consumer watchdog Australian Competition and Consumer Commission would investigate supermarket prices and competition, the news made national headlines.

National Farmers' Federation president David Jochinke said farmers were definitely questioning why the gap between what they get paid and what price their produce ends up on supermarket shelves for keeps widening.

"Things came to a head late 2023 when farmers went from getting on average $10 per kilo for a sheep down to about $4, but there was no change in price at the supermarket," Mr Jochinke said.

Farmers weren't impressed and neither were consumers who were already bowing under the cost-of-living crunch.

"We particularly felt food price inflation in the quarter to September 2022 when fruit and vegetables jumped by 16.2 percent," he said.

While food prices have since steadied thanks to better growing conditions, latest figures from the Australian Bureau of Statistics show we are also feeling price pain from rises in insurance, transport and, of course, housing.

While people are looking squarely at the end of the supply chain, the supermarkets, and whether they are price gouging, Mr Jochinke wants to see a lens put over the entire food supply chain.

"There's a lot of players in the middle between the farmer and supermarket," he said.

"There's just no transparency in the supply chain on who's clipping the ticket, if there're any problems pushing costs up and what efficiencies we can improve upon – for example, are the poor conditions of roads adding to transport costs?

"There's also work that can be done to improve our competition laws in Australia, where we have a highly consolidated market – there're just not many places growers can sell their produce to.

"This means farmers have limited options to shop around to find a better price and it also puts consumers in the same boat."

Reduced margins were one of the reasons 34 percent of growers told AUSVEG last year they were considering leaving the industry.

The ACCC inquiry isn't the only one looking at food prices, there are numerous other inquiries happening at the moment, such as the Food and Grocery Code Review and a Senate inquiry.

"Farmers are pleased these inquiries are happening, but there's no silver bullet," Mr Jochinke said.

"The ACCC inquiry alone is a 12-month investigation and we've seen before how reports and recommendations sit on shelves in Canberra, collecting dust.

"Australians need to see some real change, and fairer and more transparent markets are a good place to start."

Australian Farmers

The gap keeps widening between what farmers get paid and the price their produce ends up on supermarket shelves for.


Farmers and consumers are not impressed and are already bowing under the cost-of-living crunch.

Vets on plastics in veterinary medicine

THE use of disposable plastics and their subsequent environmental impacts are topics of increasing concern in modern society.

Medical, including veterinary, sectors are major contributors to plastic waste production.

While there is an existing body of literature on the use and reduction of disposable plastics in the human medical sector, few studies, if any, have specifically investigated the use of plastics within the veterinary field.

The overall aim of this pilot study was to investigate Australian veterinarians regarding their attitudes toward the ways in which they use disposable plastic in their work and personal lives.

The full article can be viewed pubmed.ncbi.nlm.nih.gov/36690594/

Medical, including veterinary, sectors are major contributors to plastic waste production. Photo by Thinkstock

Materials and methods

Seven veterinarians were interviewed, representing a range of demographics and professional backgrounds from multiple states.

Thematic qualitative analysis was employed to organise the data into several major themes encompassing many smaller nodes.

Results

The dataset revealed that most if not all veterinarians interviewed agreed that disposable plastic was used in excess in veterinary medicine, but that veterinarians would never be able to avoid using plastic entirely.

Participants supplied differing opinions with respect to the best strategies for reducing plastic waste production within the veterinary field, including recycling, replacing disposable items or improving education.

Discussion

Despite different participants suggesting conflicting ideas, most if not all of the ideas presented have support in the scientific literature.

This supports a hybrid approach involving refining recycling systems, reducing plastic consumption and improving education on plastic waste production.

A hybrid top-down-bottom-up approach must include encouraging cooperation among stakeholders both within and outside the veterinary sector, as this will be a major contributor to progress.

In a broader context, this hybrid approach to inciting change at all levels of the veterinary sector will require engagement from many interdependent entities.

As such, this study should act as a starting point for an ongoing process of cooperative change.

Recommendations for future research include life cycle analyses of reusable versus disposable veterinary materials, exploring ways to expand sustainability education within and beyond the veterinary sector, and examining methods of improving technology and infrastructure.

New workplace reforms mean there are new rules employers need to be aware of.

Changes to workplace, migration and housing

MORE changes and new legislation relating to Australia's workplace and migration laws have passed in recent months, meaning there are new rules employers need to be aware of.

Some changes have commenced and others are yet to come or are the subject of upcoming review and consultation.

In addition to advocating for agriculture's workforce needs, peak industry bodies are spearheading policy solutions to address housing and farm accommodation shortages.

Workplace laws

There will be a range of changes that affect organisations in various ways resulting from the passing of the Fair Work Legislation Amendment (Closing Loopholes No. 2) Bill, which has multiple commencement dates.

This represents second and third tranches of major industrial relations reforms made by the Albanese Government and covers labour hire regulation (same job same pay), a new definition of casual workers (focused on firm commitment to ongoing work) and right for casuals to elect to convert to permanent after six months, criminalisation of wage theft, increased union delegates' rights, union right of entry without notice for suspected underpayments and road transport workers.

In a joint media release, Australia's employer groups including the National Farmers Federation expressed concerns about ramifications of rushed major workplace relations changes.

The NFF pledges ongoing engagement with parliamentarians to address concerns and ensure practical industrial relations laws for the agricultural sector in the coming year.

Notably, the Australian Livestock and Rural Transporters Association welcomed the government's decision to carve out livestock transporters from the road transport element of the bill.

Changes mean that the Fair Work Commission would otherwise have power to make orders (standards) for the road transport industry.

In addition, the Fair Work Ombudsman is urging agriculture sector employers to prioritise compliance, having fined employers $316,860 nationally and recovered $72,301 for underpaid workers.

The regulator has investigated 447 businesses in regional hot spots across Australia since its agriculture strategy began in December 2021.

Migration

The Australian Government has been reviewing the migration system and in December 2023 announced a final Migration Strategy following consultation.

Australian Pork Limited is working to understand all of the details and timings and has engaged with the Department of Home Affairs, along with other peak industry bodies, in recent briefings and meetings.

Some changes have been introduced already, some are potential changes or medium to longer-term, and include:

- Visa applications for regional areas are now highest priority for processing
- Continued focus on simplification and faster processing of visas
- For standard skilled visa programs, labour market testing requirements have been reduced and changes made to subclass 482 pathways to permanent residence, reducing the period of time before nomination to two years
- Redesign of the temporary skilled shortage visa program into three streams based on salary criteria
- Further review and consultation has been flagged to occur early-mid 2024 regarding labour agreement, backpacker and regional migration settings – APL will engage in these processes to ensure the right outcomes for the industry's workforce needs.

Providing a useful summary of changes with indicative timeframes is this action plan – immi.homeaffairs.gov.au/programs-subsite/migration-strategy/Documents/migration-strategy-action-plan.pdf

In addition, the Federal Government is focused on stamping out exploitation of migrant workers and recently passed the Migration Amendment (Strengthening Employer Compliance) Bill 2023, which will strengthen the Migration Act in this regard.

Changes, some of which commence from July 1, will make it a criminal offence to coerce migrant workers to work in breach of their visa conditions or use a worker's migration status to exploit them.

Penalties and fines will triple and employers found to have contravened migration rules will face bans on hiring temporary visa holders.

To understand how these changes specifically apply to your business, it is important to seek professional advice.

Some state pork organisations offer workplace relations advice for members, as does the Australian Meat Industry Council for their members.

APL updates on these policy changes and more in the weekly newsletter – subscribe at australianpork.com.au/contact

APL works closely with the NFF and the AMIC on national workforce policy issues.

For any questions or concerns, and to help inform peak industry body responses, contact policy@australianpork.com.au

Housing solutions

Regional housing solutions were the focus of a national summit held recently in February.

The summit brought together 300 leaders from local, state and federal governments, along with representatives from industry, peak bodies and the not-for-profit sector to pursue solutions to regional Australia's housing needs.

The summit was hosted by the Regional Australia Institute, the Real Estate Institute of Australia and the Master Builders Australia, supported by the Bendigo and Adelaide Bank, the Australian Forest Products Association and the NFF.

Leaders called for region-specific new build targets, bolstered and quarantined regional housing infrastructure funding and better planning for growth.

In its recent 2024-25 pre-budget submission to the Federal Government, NFF called for $175 million over four years for a 'farmworker accommodation stimulus package' of taxation concessions and incentives to accelerate the construction and upkeep of farmworker accommodation.

After passing a Regional Housing and Accommodation Policy in 2023, NFF have been working with the Federal Government, Housing Australia and key members of parliament, such as Minister for Housing Julie Collins and Helen Haines on her package of proposed measures.

The NFF are advocating for a long-term nationally coordinated approach and actions that include investigating tax incentives, faster planning approvals, improving access to finance and creating a dedicated regional housing infrastructure investment fund.

Angela Bradburn
APL Policy Analyst

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NFF president David Jochinke has said Keep Farmers Farming is to encourage the government to understand the impact of the policies it rolls out.

Concerns for WA producers

LEADERS of Australia's peak farm body were in Western Australia recently, hearing concerns from local farmers about the impact of Federal Government policies.

President of the National Farmers' Federation David Jochinke said policies currently being rolled out from Canberra were putting farm productivity at risk.

"What we're hearing is that farmers in the west have had a gutful of not being listened to by government," Mr Jochinke said.

Adding that the cumulative layering of damaging policies on the sector had prompted the NFF to lead the Keep Farmers Farming campaign – aimed at raising community awareness of the policies hurting farmers.

"Our aim with Keep Farmers Farming is to encourage the government to understand the impact of these policies and look to correct course," he said.

"We want them to listen to the voices of the people who grow our food and fibre and work collaboratively with us to grow the sector."

The visit by both Mr Jochinke and NFF chief executive officer Tony Mahar coincides with a visit to WA by the Federal Minister for Agriculture, Fisheries and Forestry Murray Watt.

"It's good to see the minister turning up to hear the perspective of farmers in the west," Mr Jochinke said.

"There's no doubt they'll be telling him the same thing we have in Canberra – and that is that people are increasingly frustrated and anxious at how government policies are going to impact on the sector and regional communities that host them.

"Their policies will diminish WA's great farm sector, they'll mean less jobs and less investment, and they'll hurt WA's iconic farming communities."

The NFF's Keep Farmers Farming campaign will continue to maintain a strong focus on the issues impacting WA farmers and the repercussions this will have for the broader WA economy.

Economic contribution of Australia's pork industry 2022-23

AUSTRALIAN Pork Limited recently contracted economics firm Acil Allen to update the estimate of industry's contribution to the Australian economy.

This analysis was previously undertaken for the 2015-16 year and provides valuable information about the industry's significance to local and national economies.

The results highlight increased value and sustainable growth of the Australian pork industry and its importance to regional communities.

Pig production is a valuable industry, generating considerable economic activity and creating jobs for Australia's regional communities.

The industry contributes over $6 billion in gross domestic product and supports approximately 34,600 full-time equivalent jobs.

The methodology used an input output method – a common modelling technique that looks at production and how an industry's activity stimulates other sectors of the economy.

The analysis estimated the pig farming sector's direct and indirect contributions to the Australian and state economies.

The direct contribution of an activity in terms of value added is the initial impact of the pig farming activity on the economy.

However, purchasing intermediate inputs or spending on incomes made from pig farming leads to further economic impacts, estimated as the indirect contribution.

A range of multipliers were also calculated to facilitate economic footprint analysis.

The pork industry's total $6 billion economic contribution is comprised of a $1.7 billion direct contribution and a $4.34 billion indirect contribution.

The direct contribution comprises:

- Pig production ($658.2 million)
- Primary processing ($478.7 million)
- Secondary processing and wholesaling ($556.2 million).

The indirect contribution is made up of:

- Pig production ($1.59 billion)
- Primary processing ($613.2 million)
- Secondary processing and wholesaling ($2.14 billion).

Further breakdown of how pig farming activities alone contribute to each state is provided in Table 1.

Pig production contributes $5400 per sow to a typical regional community.

This includes direct contributions from piggeries and expenditures by supply chain workers, stimulating economic activity in local businesses.

This amount includes the direct contribution of the piggery supply chain workers spending their after-tax incomes on other local goods or services, such as local hairdressers, restaurants and retail traders to name a few.

If the regional community also contains a primary processing facility, then the economic contribution made per sow rises to $7700 for each animal.

For every 1000 sows, 21 jobs are created.

Following completion of the analysis in January this year, APL is now focusing on communicating the results to industry and externally with governments, policy makers and other key stakeholders to showcase the valuable impact and contribution made by producers and the supply chain.

The report and a summary will be made available on the APL website.

In the meantime, anyone interested can contact policy@australianpork.com.au for more information.

Angela Bradburn, APL Policy Analyst

	QLD	NSW	VIC	SA	WA	TAS
Contribution of pig farming activities to the state's economy (2022-23)	$612 million	$352 million	$527 million	$449 million	$297 million	$8 million
Jobs supported by pig farming activities (FTE)	3518	1924	3000	2451	1344	77
Household income generated by those jobs	$298.5 million	$167.6 million	$255.2 million	$210.4 million	$141 million	$3.6 million

Table 1: Contribution of pig farming activities to each state. Source: Acil Allen (2024), 2022-23 Economic Contribution of the Australian Pork Industry, prepared for APL, Jan 2024.

Evo Cleaner piggery shed washing robot

THE Evo Cleaner is a unique washing robot developed for washing pig houses.

The robot streamlines and enables automated washing around the clock, completely programmed according to your specific shed interior and washing needs.

The Evo Cleaner is a time, cost and water efficient choice.

Staff shortages, increased labour costs and consistency in washing are only a few of the reasons why customers are purchasing the Envirologic washing robot.

Glenlock Beef & Bacon and McMahon Family Enterprises recently contacted Stockyard Industries to enquire about the emerging technology.

After thorough discussions with the Stockyard Industries team, consideration was given to how the machine would benefit each specific farm shed layout, with both producers making the decision to invest in an Evo Cleaner to assist with the strenuous and unpleasant job of washing out their pig houses.

Included in the purchase were two days of setup and training with an experienced Stockyard Industries technician, who ensured both customers were confident in how to program and use the robot, and also provided ongoing support.

Now, a little further down the track, both farms are seeing incredible results.

In January 2023, Glenlock Beef & Bacon – a family owned 450-sow piggery based in South Australia – received their unit.

The team purchased an Evo Cleaner to use in their farrowing house, which has a lot of equipment and obstacles, with the purpose of not only saving time and money, but to give the piglets a hygienic environment for the best possible start in life.

The farm manager said, "Our farrowing shed has been retrofitted over time, leaving us with a couple of inconsistent pen sizes."

"The Evo Cleaner follows it's wash program so precisely that, when it came to these obscure pens, the robot touched the side of the crate, causing the machine to shut off and send me a text message notification alert.

"This was easily fixed, given we have the ability to add small 'wash recipes' over the top of the original programming without having to start again from scratch.

"This is also handy if we ever want to fine tune the programming to focus on any areas with large manure build up or areas that get missed.

"Stockyard Industries provided countless hours of support, not only with the initial setup, but anytime we've had any questions or an issue arises."

The Glenlock Beef & Bacon farm manager added that their shed design allows for 16 crates to be automatically cleaned as part of a wash run.

"We can start the Evo Cleaner as soon as one row has been weaned, which allows us to continue weaning the other rows and giving our piglets our full attention, knowing we're not falling behind with our wash routine."

"We then set it again to start washing before going home at the end of the day, allowing the machine to work well into the night, knowing we'll arrive the next day to clean crates.

"So far, we're currently saving four hours with each wash every time we wean, which frees up our staff to focus on more constructive tasks.

"Given the short turnaround time of a farrowing shed under a batching system, the Evo Cleaner has proven itself invaluable.

"It's become something in which we rely heavily on now and we're excited to see what else we can program it to do in the future."

In July 2023, McMahon Family Enterprises (McPiggery), which runs a 1650-sow piggery in South Australia, took ownership of a new Evo Cleaner – the robot being used in conventional grower sheds to clean out group pens that consist of concrete floors and walls, feeders, drinkers and other equipment.

The McPiggery maintenance manager, who worked alongside the Stockyard Industries technician during the setup and training, provided the following feedback after having the machine operational for over six months now.

"Like every conventional grower shed, these pens are often left with 50-70mm of built-up manure that previously took numerous workers close to a full day to wash."

"Varying from shed to shed, the labour hours required would range from 16 to a worst case of 24 hours.

"Now the machine is set up the day before we clean and operates throughout the night, allowing it to remove 90 percent of the heavily soiled manure before staff arrive the next morning.

"Following the introduction of the Evo Cleaner, we've managed to reduce our labour to two staff members – who wash for half a day (8-12 hours, depending on the shed), as they come through and touch up the remaining 10 percent of the shed that needs the extra attention, and complete the disinfection process.

"This allows them more time in the afternoon to focus on other important and beneficial maintenance and husbandry tasks.

"The Evo Cleaner has been so successful at the first site, we are now installing more infrastructure at our other grower sites to make further use of the cleaner."

McPiggery's maintenance manager added that cleaning grower shed floors is often a long, strenuous and tedious task.

"Now with the use of our Evo Cleaner, we've been able to provide a much safer and pleasant working environment, leaving our staff members with improved job satisfaction."

"As well as being reliable, the robot has also reduced our risk of fatigue and repetitive strain injuries among our team.

"Stockyard Industries have provided exceptional backup support, and having a technician on farm to take our staff through the setup and operation for two days was an added bonus."

The Stockyard Industry team will be displaying at the 2024 PIX, AMC and APL Conference 'Food with Purpose', being held at the Gold Coast Convention and Exhibition Centre on May 13-15.

An Evo Cleaner will be available and demonstrations given to show how a unit can benefit your farm.

For further information, or to discuss how the Evo Cleaner could save you time and money and make your wash routine easier, visit stockyardindustries.com and contact a member of the Stockyard Industries sales team today.

The Envirologic Evo Cleaner is a unique washing robot developed for washing pig sheds.

The robot enables automated washing around the clock, completely programmed according to your specific shed interior and washing needs.

Better solutions than routine antibiotic dosing

Pork farming is an industry where modern testing approaches can significantly improve animal health outcomes. Photos: Genics

Authors Dr Melony Sellars and Dr Jeremy Brawner both have extensive expertise in the application of novel biotech solutions for the farming industry, including genetics and breeding programs.

WHY is routine antibiotic dosing still used when we have better livestock and aquaculture health solutions?

Despite the lack of evidence for its efficacy, routine 'preventative' livestock antibiotic dosing is still common in many countries.

Meanwhile, the detrimental consequences of antibiotic overuse, such as eroded antibiotic effectiveness and the threat of antibiotic-resistant pathogens, are well established.

But, in this era of highly accurate early detection pathogen testing, we now have effective affordable alternatives to routine antibiotic dosing.

For farmers, there are strong incentives to transition away from excessive antibiotic use and take advantage of modern pathogen testing technology.

Not only is it easily accessible at this point in time, it's also more cost-effective, safer and a valuable investment in the future productivity of livestock breeding programs.

We've known about the problems with antibiotic overuse for decades.

In 1969, more than half a century ago, a British government committee conducted a landmark investigation into the value of agricultural antibiotic dosing.

The United Kingdom Government commissioned the investigation following an outbreak of antibiotic-resistant salmonella that killed six people and which scientists suspected was caused by the overuse of antibiotics in farming.

The report, Joint Committee on the use of Antibiotics in Animal Husbandry and Veterinary Medicine, or 'The Swann Report' as it became known, was designed to be a foundation for the legislative regulation of farm antibiotic use.

The Swann Report was strongly critical of contemporary veterinary practices, stating that:

It is sometimes advocated that an antibiotic should be given to apparently healthy animals with the intention of preventing cases of a specific illness or illnesses which previous experience has suggested may be expected.

It is hard to find any excuse in logic or in theory for this practice, and even harder to find any practical evidence that it does any good at all.

Agricultural antibiotic reform is overdue

Despite the emphatic findings of the Swann committee in 1969, its authors chose to be conservative in their regulatory recommendations.

They focused on discouraging antibiotic overuse for growth promotion, a common practice at the time, but made no proposals for ending other types of questionable routine use, including so-called "disease prevention."

The Swann Report did not make a significant impact on agricultural practices.

In the twentieth century, most farmers couldn't access viable affordable disease prevention alternatives.

New regulations in some countries meant they were forced to obtain livestock antibiotics via veterinary prescription but, despite this, farm antibiotic overuse and antibiotic resistance among livestock continued to increase.

Half a century after the Swann Report, in April 2019, the Interagency Coordination Group on Antimicrobial Resistance published another report on agricultural antibiotic use and resistant pathogens.

As did the Swann authors 50 years earlier, the IACG stated that the use of antibiotics for growth promotion and routine "prevention" were both contributing to antibiotic resistance in livestock.

The IACG authors wrote that:

The use of antimicrobials to promote growth and routinely prevent disease in healthy animals and crops without appropriate indication and in the absence of good agricultural practices to prevent infectious diseases on farms are further contributing to the development and spread of antimicrobial resistance.

In other words, 50 years after the Swann Report, farmers were still spending good money to dose their livestock with antibiotics, to little effect.

In fact, rather than protecting them from disease, antibiotic overuse was perpetuating a spiral where animals became more susceptible to pathogens, generation by generation.

Modern commercial pathogen testing is a better alternative

In 2022, the European Union introduced new rules on the use of antibiotics in agriculture.

Designed to curb antibiotic overuse on European farms, one of the principal EU regulations decreed the cessation of "preventative group treatments."

So, how is the EU able to take such uncompromising action without concern about disease outbreaks on farms?

The answer is that EU regulators are following the science and know they can rely on more modern approaches to disease management utilising genomic profiling and polymerase chain reaction pathogen testing technology.

Unlike routine antibiotic dosing of livestock, clinical PCR pathogen testing doesn't have collateral adverse outcomes for future livestock health.

Rather than unnecessarily squandering antibiotics treating healthy animals, farmers can use pathogen lab testing services as a diagnostic screening system.

It makes early pathogen detection possible so farmers can focus their efforts on the specific diseases that are a real and immediate threat.

Genetic profiling is also a powerful tool to increase disease resistance in animal populations.

With consistent genetic monitoring, farmers can selectively breed animals that become more resistant to disease, generation by generation.

This starkly contrasts with the routine antibiotic dosing paradigm, where animals are effectively incubators for increasingly virulent and destructive pathogens.

Though readily available, commercial PCR lab testing for agriculture is relatively new, yet the concept of disease screening as an alternative to antibiotic dosing is well established.

In its 1999 publication, Approaches to Minimising Antibiotic Use in Food-Animal Production', the US National Research Council Committee on Drug Use in Food Animals stated:

Molecular biology approaches can be applied to genetic strategies to enhance selection for advantageous traits, including resistance in livestock to disease.

Traditionally, breeding strategies have not been designed to select for host resistance and desirable production traits at the same time.

One alternative to the traditional approach is the use of genetic-marker-assisted selection, which offers an opportunity for simultaneous improvement in all the traits.

New tools of molecular biology make it possible to simultaneously improve production and disease resistance traits.

Molecular genotyping techniques allow the detection of DNA polymorphisms.

Such polymorphic marker loci can be used in marker-assisted selection.

For example, selection for a disease resistance gene, for which there is no direct method of genotyping, can be affected by selection for the appropriate alleles at linked marker loci.

The National Research Council determined that enhancing immunity via strategic breeding could be an alternative to agricultural antibiotic overuse.

Though the implementation of those ideas was futuristic in the 1990s, these techniques are the foundation of today's industry-leading breeding programs, which are underpinned by disease detection and management services.

With modern genetic profiling services, farmers can implement breeding programs to increase the disease resistance of their animals generationally.

While antibiotic dosing weakens disease resistance over time, the DNA-supported breeding approach produces livestock that are more resilient, as well as more productive.

In the current era, when routine PCR testing and genetic livestock monitoring are readily available and highly affordable, there's no reason to perpetuate the unhealthy practice of antibiotic overuse.

Certified laboratory testing and rapid disease screening protocols not only preserve the efficacy of antibiotics, they also offer far more precise and efficient disease

☛ continued P15

Genetic breeding programs and commercial laboratory testing have proven to be highly effective at countering disease threats in aquaculture.

Better solutions than routine antibiotic dosing

☛ from P14

control capabilities on farms.

The way forward for farm productivity and human health

More than ever before, overusing and misusing antibiotics in farming is widely seen as an unacceptable risk.

The World Health Organisation has long been raising awareness about the dangers of antibiotic overuse in farming, which extend beyond livestock health issues into the domain of human health.

World Health Organisation 2017:

WHO strongly recommends an overall reduction in the use of all classes of medically important antibiotics in food-producing animals, including complete restriction of these antibiotics for growth promotion and disease prevention without diagnosis.

Healthy animals should only receive antibiotics to prevent disease if it has been diagnosed in other animals in the same flock, herd or fish population.

Disease prevention techniques such as PCR pathogen testing and genetic breeding programs offer a more secure pathway to sustainable agricultural outcomes.

In addition to being an effective defence against epidemics, these modern approaches also lower the cost of health management.

Genetically managed livestock populations with better disease resistance and lower exposure to antibiotics are ultimately more robust, which means lower overheads involved with disease mitigation.

Of course, improved animal husbandry, proper nutrition and biosecurity are all crucial factors in overcoming agricultural antibiotic dependence.

But the only way producers can ensure their livestock are protected is by regular testing with certified laboratory-grade pathogen detection and a systematic proactive approach to breeding for disease resistance.

About the authors

Dr Melony Sellars has 25 years of experience in aquaculture, with an in-depth background in shrimp farming.

She has extensive expertise in the application of novel biotech solutions for the farming industry, including genetics and breeding programs.

Dr Sellars is the chief executive officer and managing director of Genics, an industry-leading provider of animal health, pathogen management and breeding program technology.

Dr Jeremy Brawner has used quantitative genetics and genomics to develop disease-resistant food production systems in response to disease outbreaks worldwide.

As head of genetic solutions with Genics, he develops breeding programs to improve producers' profitability and resilience by integrating genotyping, pathogen characterisation and artificially intelligent phenotyping solutions.

If you would like more information about advanced pathogen testing and genetic breeding programs for animal health, visit genics.com

Melony Sellars and Jeremy Brawner

Student ghosted following pork detection

AN international student's visa has been cancelled and an infringement notice of $3756 issued for attempting to bring more than 2kg of cooked meat, eggs and frangipani flowers into Australia.

Working with his handler Rebecca, biosecurity detector dog Ghost sniffed out the offending items at Adelaide Airport's baggage claim area.

The passenger was referred for additional screening where biosecurity officers discovered 2.7kg of cooked meat (suspected to be pork), 301g of cooked egg and six fresh frangipani flowers – none of which had been declared by the traveller on their Incoming Passenger Card.

The passenger was referred to Australian Border Force, which upheld biosecurity officers' recommendation to cancel the student's visa.

Biosecurity and Compliance deputy secretary Tina Hutchison said it is important travellers coming to Australia declare all food, animals, plants and seeds on their Incoming Passenger Card.

"Commercial international flights arriving in Australia provide our incoming passenger biosecurity information, which clearly outlines what's prohibited – including food and animal and plant products," Ms Hutchison said.

"Our best advice is… if in doubt, leave it out when you're packing.

"But if you're already on your way here, just declare truthfully on your Incoming Passenger Card and our biosecurity officers will assess your items.

"You will not be penalised under the Biosecurity Act 2015 if you declare and present all goods, even if they are not allowed into Australia.

"Our frontline biosecurity officers and our detector dog teams go above and beyond to protect Australia's agricultural industries, our food supply chain, our environment and our unique way of life.

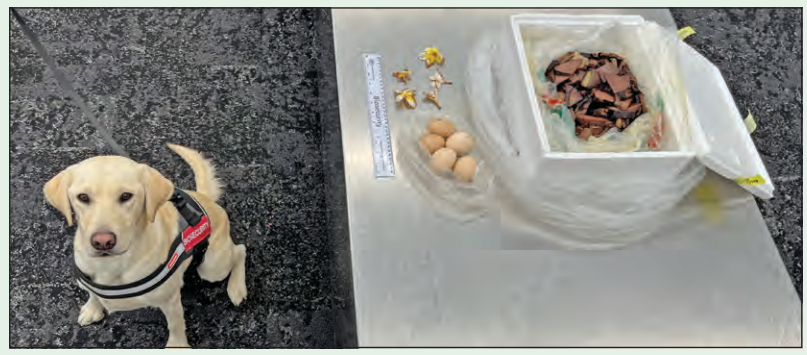
"Ghost is one of the dogs funded through an $11.7 million investment in our detector dog program in 2022-23.

"In just his first year, Ghost has stopped nearly 400 biosecurity risk items from entering Australia."

In 2023, nearly 400,000 biosecurity risk items were stopped by biosecurity officers at Australia's international airports, including more than 19,000 in Adelaide.

Fast facts:

- Ghost is a 2.5-year-old male labrador who graduated his biosecurity detector dog training in November 2022
- Ghost is one of the 11 detector dogs currently in operation that have been funded through the government's $11.7 million Detector Dog Capability Increase budget measure
- All 20 additional detector dogs funded through the budget measure will be delivered before the end of 2024
- 18 of the 20 detector dog handlers for the program have been recruited
- Of those, six handlers have finished their training and been deployed and the other 12 are undergoing or are about to commence their training
- In his first year of deployment, Ghost intercepted 194 travellers and mail articles entering Australia, totalling 381 biosecurity risk items seized, including 111 animal products, 104 fruit products, 62 plant products, 38 vegetable products and 66 other products
- Some examples of items Ghost has intercepted include sausages, guava and pork floss.



Ghost detected more than 2kg of cooked meat, eggs and frangipani flowers that an international student had attempted to bring into Australia.

PALM changes a burden for farmers

Shadow Minister for International Development and the Pacific Michael McCormack.

Approved Employers of Australia executive officer Steve Burdette.

FARMERS and industry fear Labor's imminent updates to the Pacific Australia Labour Mobility Scheme could result in workers from nine Pacific Islands countries and Timor-Leste permanently receiving, in some circumstances, better pay conditions than Australian farm workers, placing an undue burden on employers.

Labor previously made changes in 2023 but is now due to update them, which industry fears risks cementing some elements that could be harmful.

Mr Littleproud said farmers were anxiously awaiting Labor's release of the new guidelines, as there were serious inconsistencies with industrial relations rules when it came to 'stand down' guidelines and making it more expensive for employers.

"Australian workers are occasionally 'stood down' temporarily as part of their enterprise agreement and, because of this, they can be paid a higher hourly rate," Mr Littleproud said.

"This is common in places such as abattoirs when there is no stock or if a processing plant requires maintenance.

"So Australian and migrant workers aren't paid during a stand down because they can earn the higher hourly rate to cover them.

"On the other hand, new guidelines for PALM workers indicate they must be paid regardless of a stand down.

"The oversight means that PALM workers risk receiving greater conditions, that is pay, than Australian and migrant workers performing the same job in the same scenario."

Shadow Minister for International Development and the Pacific Michael McCormack said the union puppetmasters are once again interfering and potentially jeopardising what was innovative coalition policy.

"PALM has the ability to provide great career opportunities for Pacific workers, help farmers with labour demands and strengthen our foreign ties," Mr McCormack said.

"However, all of this is on the chopping block under Labor."

Summer Fruit chief executive officer Trevor Ranford said the changes were unrealistic and will continue to put upward pressure on the cost of production and cost of living pressures.

"Farmers are telling me they cannot afford the new regulations coming through and they will walk away from PALM, and some are even considering walking away from growing fruit altogether," Mr Ranford said.

"Farmers will be forced to move towards backpackers and more transient workers and are already planning to do so.

"Otherwise, you're paying for workers that might do two hours of work a day, but you pay them for seven, as an example, for a stand down.

"No one can afford that.

"If you have to pay someone for not working, the hours should then be owed.

"If that doesn't happen, the PALM program will fall apart."

Approved Employers of Australia executive officer Steve Burdette said the Albanese Government implemented changes to the PALM scheme that have created confusion, uncertainty and angst for Australian and migrant workers and their employers.

"Changes to minimum earnings, employer responsibility for transport and accommodation, leave requirements and accommodation processes are increasing the costs of running the program and decreasing employment opportunities for Pacific workers," Mr Burdette said.

"We must return to practical and pragmatic solutions that can actually be implemented and improve outcomes for workers."

Mr Littleproud added a future Coalition Government would reinstate the AgVisa.

"This year, farmers will also be forced to offer a minimum of 30 hours per week over four weeks to PALM workers," Mr Littleproud said.

"They will then be forced to offer 30 hours per week every week from July 1, 2024.

"This is despite agriculture work being seasonal and weather dependent.

"The PALM scheme has the potential of only 42,000 workers and is now even more unattractive for farmers to sign up to.

"The result will be farmers will choose to plant less, driving up prices at the checkout.

"Without the AgVisa, Labor's policy settings will gradually suffocate Australia's world-leading agriculture industry and reduce domestic production and supply, driving up costs."

Leader of The Nationals David Littleproud said Labor needs to address disparities in new PALM guidelines. Photo: Australian Government

Technicians in hot water after masterclass

RECENTLY, Aussie Pumps hosted a masterclass on servicing hot-water pressure cleaners.

The aim was to both train service technicians and to demystify the mechanics behind the machines.

The participants were taken through the basics of the hot-water machines and shown how, by careful design, Aussie Pumps range of steam cleaners have been tailored for Australian conditions.

Aussie Pumps chief engineer John Hales said, "When we set out to sell hot-water and steam pressure cleaners in Australia, we knew that the standard European machines did not measure up to the local conditions."

"Reliability is vital, especially in the sheds where time is of the essence, and rotation of stock."

Aussie Pumps set out to design key features into its machines, to give users advantages that were essential, yet without including over-complicated components that could potentially fail.

A prime example, Aussie's Admiral 4000 steam cleaner is a 4000psi steam cleaner with increased capability and the advantage of using less water consumption.

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

The 4000psi capability with flows to 15LPM means the Admiral can move caked-on debris fast, delivering huge time savings.

It's the combination of steam up to 130C, 4000psi pressure and huge flow that gets the jobs done faster.

The operator has the ability to vary both pressure and heat from the control panel to optimise performance and cleaning efficiency.

All of Aussie's hot-water machines come with four pole motors and slow-speed heavy-duty European triplex pumps.

They provide a longer and trouble-free life.

The range includes both single and three-phase options, with pressures from 1800psi all the way up to 4000psi.

The machines also come with stainless-steel covers (replacing the traditional European-style plastic cover), a steel chassis that is stronger and longer lasting than polypropylene and four wheels (not castors) for ease of movement on uneven surfaces.

Aussie's machines are streets ahead of imports.

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

These include timed total stop, auto shutdown, micro-leak detection and low fuel sensor with warning light.

"What the masterclass taught our technicians was that Aussie's steam cleaners are as tough on the inside as they look from the outside," Mr Hales said.

Aussie Pumps has comprehensive workshop manuals for servicing hot-water machines available free of charge.

For further information on Aussie's range of hot-water and steam cleaners, visit aussiepumps.com.au

Participants were taken through the basics of the hot-water machines and shown how Aussie's range of steam cleaners were perfect for Australian conditions.

Aussie Pumps recently hosted a masterclass on servicing its hot-water pressure cleaners.

Food and Grocery Code review

AUSTRALIA'S peak farming body supports recent announcements on the review of the Food and Grocery Code of Conduct, hoping the action will give the code the teeth it needs to fix a system failing consumers and farmers.

National Farmers' Federation president David Jochinke welcomed the Federal Government's appointment of a chair to take the review forward.

"The code is failing farmers and we've said for a long time it should be made mandatory," Mr Jochinke said.

The NFF calls on chair Dr Craig Emerson to adopt the recommendations of the Australian Competition and Consumer Commission's Perishable Agricultural Goods Inquiry, including making the code mandatory, removing the ability of retailers to contract out of important protections in the code, introducing significant civil pecuniary penalties and providing genuinely independent dispute resolution.

The NFF also welcomes the announcement that the government will support all recommendations from the review of Part 5 of the Food and Grocery Code of Conduct to support disputes to be resolved more efficiently and effectively.

Mr Jochinke said while these announcements were a positive step, there was still a long way to go to fix Australia's competition issues.

"While reviews and inquiries are all well and good, we don't want the government to be distracted from pursuing immediate reform to competition laws more broadly – for instance looking at unfair trading practices or merger laws that have led to these competition issues in the first place," Mr Jochinke said.

"Farmers told us loud and clear in the National Farmer Priorities Survey, competition is the biggest issue keeping them up at night.

"Small family farming businesses are at the mercy of large corporates that dominate Australia's food supply chain."

Farmers need to understand how the price they are paid is determined.

Why humans kill animals - Part 2

■ Delving into and discussing the first five reasons

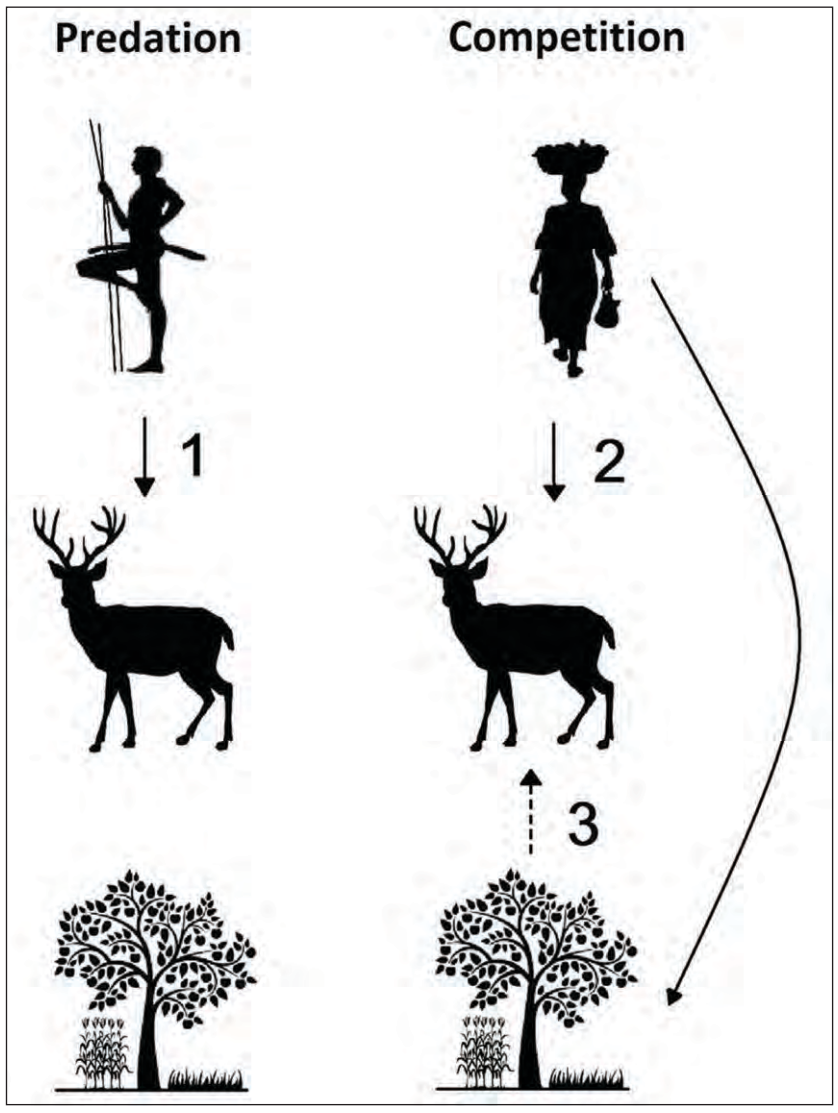


Fig. 1. Three ecological mechanisms of animal killing behaviour by humans, showing (1) predation (carnivory or meat-based diets), (2) interference competition (when animals are behaviourally deprived of access to shared resources or fear effects) and (3) exploitative competition (herbivory or plant-based diets, or consumption of shared resources). Solid lines = direct effects, broken lines = indirect effects.

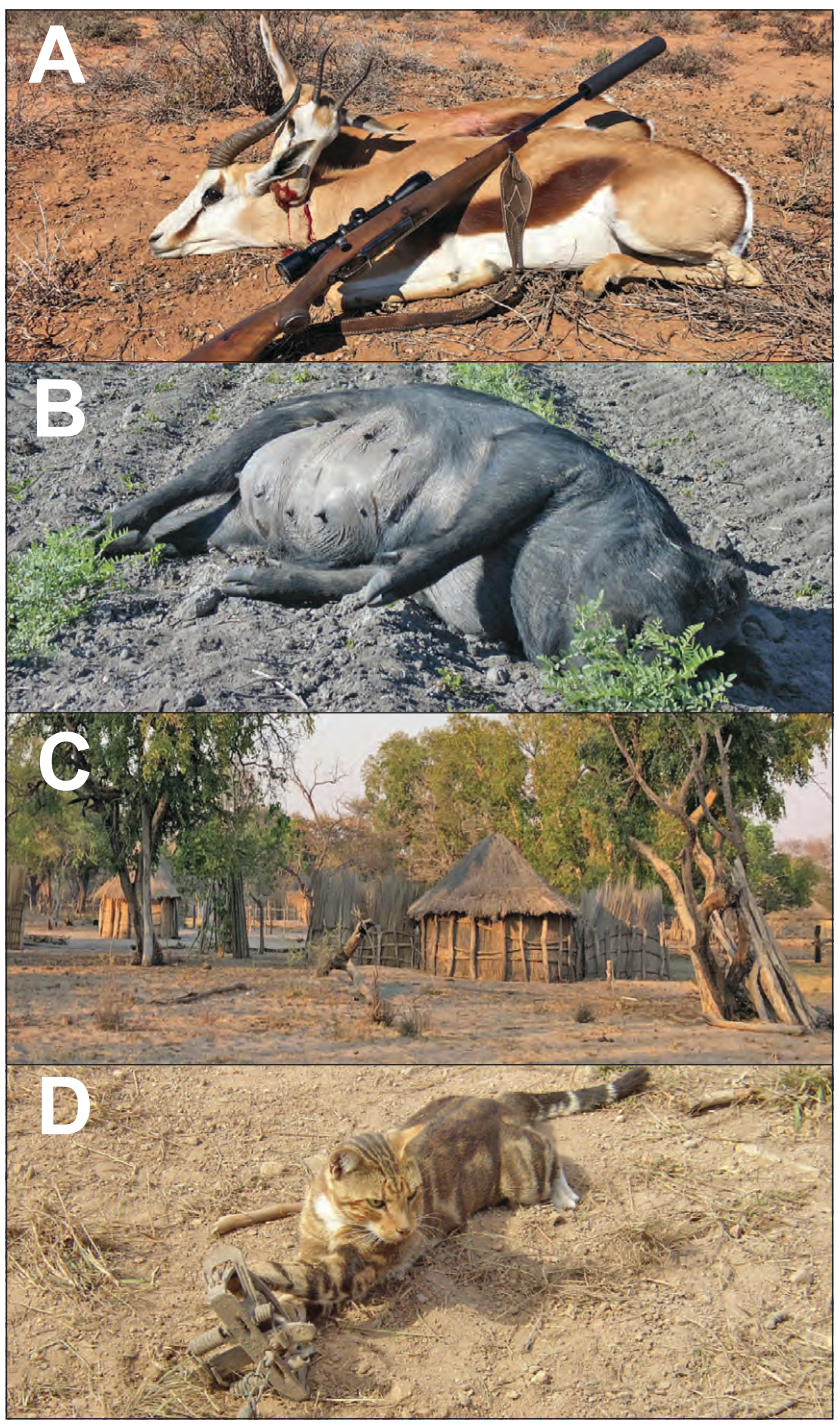


Fig. 2. Examples of direct and indirect animal killing by humans, showing (A) two springbok wild-harvested for meat in South Africa (reason 1), (B) land clearing for peanut and sugar cane crops in Australia with a feral pig shot to alleviate damage to the crops (reason 3), (C) small-scale urbanisation illustrated by a group of rondavels under trees in Botswana (reason 4) and (D) a feral cat in Australia trapped to protect threatened fauna from cat predation (reason 5). Photos: Benjamin Allen

KILLING animals has been a ubiquitous human behaviour throughout history, yet it is becoming increasingly controversial and criticised in some parts of contemporary human society.

Over a three-part series, researchers from around the globe review 10 primary reasons why humans kill animals, discuss the necessity or not of these forms of killing and describe the global ecological context for human killing of animals.

The article can be viewed in its entirety at sciencedirect.com/science/article/pii/S0048969723039062

Humans historically and currently kill animals either directly or indirectly for the following reasons:

- Wild harvest or food acquisition
- Human health and safety
- Agriculture and aquaculture
- Urbanisation and industrialisation
- Invasive, overabundant or nuisance wildlife control
- Threatened species conservation
- Recreation, sport or entertainment
- Mercy or compassion
- Cultural and religious practice
- Research, education and testing.

The first five of those reasons are discussed here.

1. Wild harvest or food acquisition

Many omnivorous and carnivorous predators – from insects to whales – hunt and kill wild animals for food.

This behaviour is known as predation and is a process integral to the proper functioning and maintenance of ecosystems.

Predation can, and often does, cause great harm and suffering to the individual animal being killed.

Some predators are specialists that target a narrow range of prey species and others are generalists that target a wider range of prey species.

Humans, and their ancestors and relatives, are generalists – omnivorous mammals that have hunted, killed and harvested a wide variety of animals for approximately 2-4 million years.

Wild harvest is the most ancient form of predation by humans.

Moreover, the evolution of humans' proportionately larger brain size is hypothesised to have occurred because of the fats and proteins acquired by eating animals, and therefore killing and eating animals was essential for the very emergence of humans.

Humans on or in the waters around all continents still harvest wild animals for food today, including people from developed and developing countries and those practicing traditional and contemporary lifestyles.

Many types of sentient and non-sentient animals are harvested, including echinoderms, molluscs, crustaceans, insects, fish, reptiles, birds and mammals.

Wild harvest of mammals, reptiles and birds is often characterised by low-volume or opportunistic hunting, such as the acquisition of bushmeat.

Other forms of high-volume or intensive harvesting are also practiced, such as the many fisheries in operation around the world or the commercial kangaroo harvest in Australia.

Wild harvest of animals cannot be practiced without killing animals.

Wild harvest, predation or directly killing animals for food can be avoided by adopting plant-based lifestyles (for example, herbivory or veganism), but doing so cannot avoid all the indirect forms of animal killing associated with such lifestyles (see reasons 3 and 4).

This type of indirect killing is known as competition, which can also lead to prolonged animal suffering, death and eventual extinction over time.

Herbivory leads to competition-induced animal killing when humans eat plants that would otherwise be utilised by other animals, that is exploitative competition.

Competition-induced animal killing also occurs when fear effects behaviourally deprive animals of otherwise available resources, that is interference competition.

Hence, the wild harvest of both animals and plants results in animal killing – the primary difference is that one is direct killing and the other is indirect killing (see Fig. 1).

Human carnivory and herbivory are forms of wild harvest that are ubiquitous across trophic levels, ecosystems and epochs.

All forms of wild harvest cause harm to animals and there are no viable alternatives to these forms of animal killing if we are to continue feeding the 8 billion plus humans currently on the planet.

Directly killing animals for food can often be done in ways that cause no or negligible amounts of pain or harm (see Fig. 2).

When done in these ways, it can give animals a more humane or painless death than the alternatives they would otherwise experience from large-scale plant or animal-based agriculture or through natural causes such as disease, starvation or intraspecific fighting.

2. Human health and safety

Killing animals in self-defence or to protect human health and safety is also one of the most ancient forms of animal killing by humans.

It is done proactively when an animal is killed to prevent a possible threat or reactively to eliminate a present threat.

Examples of proactively killing animals for human health and safety reasons include killing large carnivores (e.g. lions, saltwater crocodiles or great white sharks) in the vicinity of human settlements or controlling populations of smaller mammals (such as racoons, feral dogs or black rats) to prevent the spread of zoonoses including rabies or leptospirosis.

Reactive killing for human health and safety reasons occurs when any animal attempts to harm or kill a human and the humans kill the animal in self-defence.

Examples include killing Asian elephants, cougars or eastern brown snakes that had attacked humans.

Killing animals for traditional medicinal use is another expression of killing for human health reasons practiced in many parts of the world, and the raising and killing of genetically modified pigs to provide a source of replacement organs for xenotransplantation into humans represents an emerging form of killing animals for human health reasons.

Proactive and reactive forms of animal killing (such as control of rodents in impoverished neighbourhoods) may also improve human mental health and well-being by reducing anxiety over both food security and disease risk.

In many, or perhaps most, cases there may be less harmful or even nonlethal ways to eliminate human health and safety risks from animals, which might eliminate the need to kill animals, especially contemporary proactive forms of animal killing (see reasons 3 and 5).

This could include vaccinating animals and humans against zoonoses, installing animal exclusion fencing around human communities, sealing buildings and grain silos to exclude grain-destroying birds and rodents or managing risk-enhancing human behaviours.

It might also be possible to reduce the need for reactive forms of animal killing by increasing tolerance of perceived threats, or by taking appropriate measures to prevent an incident or animal attack from arising, including avoidance of areas with high densities of large carnivores or other dangerous animals.

Such nonlethal practices might also include maintaining strong biosecurity systems to prevent zoonotic diseases or their animal vectors from invading new areas (see reason 5), chasing or relocating dangerous animals away from vulnerable humans, or adoption of plant-based traditional medicines or modern manufactured medicines rather than animal-based traditional medicines where culturally appropriate.

Refraining from killing animals to protect human health and safety might be possible for some humans to avoid, particularly those in affluent circumstances.

But because of human inequality and poverty across much of the world, refraining from this form of animal killing will be largely impossible at broader societal scales without compromising human welfare, ignoring cultural sensitivities and losing human lives.

3. Agriculture and aquaculture

Agriculture and aquaculture are associated with the most globally prevalent forms of animal killing.

Agriculture has been practiced by humans for at least 11,000 years and enabled humans to establish themselves as the dominant vertebrate on Earth.

Agriculture includes the production and protection of both plants and animals in both small (that is subsistence farming) and large (that is commercial farming) quantities.

Agriculture and aquaculture are forms of optimal foraging behaviour, whereby animals and humans obtain food resources in ways that minimise risk and opti-

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Why humans kill animals - first five reasons

☛ from P18

mise energy expenditure.

These practices are also analogous to caching behaviour or food storage given that a live animal can convert biomass inedible to humans into edible protein that can be consumed later at times of seasonal shortage of other plant-based foods.

Humans farm and kill a wide variety of mammals (domestic cattle, sheep, goats and pigs), birds (for example domestic chickens, ducks, geese, turkeys, pigeons and ostriches), fish (such as Atlantic salmon, common carp and bluefin tuna) and other animals (prawns, oysters or turtles) for their meat.

Animals are also farmed and killed for other reasons, such as obtaining milk and eggs (for example killing male dairy cattle or male egg-breed chickens) or feathers, fur, skins or leather (ostriches, crocodilians or American mink).

Beyond the direct killing and use of farmed animals for food or fibre, wild predators and competitors of farmed animals and plants negatively affect the production of farmed species in many cases and are also intentionally killed to mitigate the agricultural production losses they would otherwise cause.

Examples include the killing of canids, felids or mustelids to mitigate their predation on farmed animals or the killing of ungulates, macropods, birds or rodents to mitigate their competition for farmed plants.

Other examples include killing infected domestic and wild animals to stem disease outbreaks that could harm and kill vast numbers of livestock and wild animals (for example biosecurity activities).

Such diseases include foot-and-mouth disease, rabies, tuberculosis, anthrax, avian influenza, African swine fever and many others.

Indirect killing occurs when non-target animals die from accidental poisoning associated with use of the drugs, pesticides and herbicides used to protect animals and plants or as bycatch in traps intended for damage-causing animals.

Though it is not often viewed as a source of animal killing, the establishment and harvesting of crops (for example land clearing and tilling) required and still requires the direct and indirect killing and displacement of animals (that is interference competition) at enormous scales, as does the protection of crops following establishment (Fig. 2, see also reason 4).

For example, red-billed quelea are killed in their millions to protect grain crops.

Demand for soybeans and palm oil has also been a major driver of deforestation in South America and Southeast Asia, causing the displacement and death of innumerable animals through the destruction of the natural habitat they relied on.

Many but not all of such crops or their by-products might also be used for industrial non-food purposes such as biofuels or livestock feeds.

Approximately one-third of crops grown across the world also require animal manure for fertilisation, which inherently requires livestock farming to accumulate manure for later dispersal, causing consequent displacement and death of other animals.

Whether animals are killed to be eaten or worn or because almost all animals have been eliminated from land where we now grow biofuel crops or food crops for ourselves or our livestock (see also ourworldindata.org/soy), animal killing is an indisputable and unavoidable component of both the plant and animal food production systems that support human life.

Engaging in animal and plant agriculture and aquaculture in this way enables a greater amount of food to be obtained for humans than would otherwise be attainable through wild harvest (reason 1).

It is of course possible to produce livestock and crops in ways that minimise both the direct and indirect impacts on wild animal lives, but generating food on such large scales to feed a large and growing global human population is impossible without killing animals.

Killing animals for agriculture is a critical human food security endeavour, and many humans will die if humans do not kill animals to produce and protect animal-based and plant-based agriculture and aquaculture.

4. Urbanisation and industrialisation

Perhaps the most universal form of animal killing occurs when humans construct houses, factories, mines, power stations, roads, railways and other industries and infrastructure needed to support sedentary human populations.

In ecological terms, urbanisation might be better thought of as mass irreversible habitat destruction that has resulted in some of the highest rates of decline and local extinction of a range of fauna worldwide.

Urbanisation thus kills animals in ways similar to intensive agriculture (reason 3), which is intrinsically linked to feeding a rapidly urbanising human population.

Furthermore, because urban areas are typically situated in places that were once biodiversity

☛ continued P20

Within only a 10-year period, the national conservation status of koalas has deteriorated from being unlisted to listed as vulnerable in 2012, and then to endangered in 2022, which is intrinsically linked to feeding and housing a rapidly urbanising population. Photo: Klub Boks

Why humans kill animals - first five reasons

☛ from P19

hotspots, the impacts on flora and fauna are more severe for urbanisation than for most other human activities.

Urbanisation represents competition for the critical resource of space and results in the killing and expulsion of countless other animals whenever it occurs at either large or small scales.

For example, koalas are arboreal dietary specialists distributed along the entire east coast of Australia, where most of the Australian human population lives in multiple cities.

Within only a 10-year period, the national conservation status of koalas has deteriorated from being unlisted to listed as vulnerable in 2012, and then to endangered in 2022 – almost exclusively through the ongoing direct and indirect effects of urbanisation, vehicle collisions and tree clearing, or removing both the food and refuge of this iconic species.

Though far smaller in scale, the establishment of rondavels under trees in the Okavango Delta of Botswana similarly displaces the wild animals that would otherwise live there (see Fig. 2).

Thus, every living human on the planet contributes to the displacement and death of animals in this way, and/or has and is benefitting from the proceeds of such animal killing in the past (reasons 1-3 and 5).

Continued animal killing through urbanisation seems inevitable so long as global human population growth remains positive and the current trend of migration towards urban nodes continues.

Directly killing medium and large-sized animals may be avoidable when construction is undertaken carefully and affected individual animals are captured and translocated.

However, the subsequent displacement and indirect forms of animal killing (for example lack of food, exposure to predation, diseases or pollutants) associated with urbanisation are largely unavoidable.

The number of animals killed in this way may be reduced to some degree when urbanisation is directed upwards and not outwards, or when water and waste are recycled sustainably.

However, increasing human populations will still place ever increasing demands on natural resources and the associated industry and infrastructure required to support sedentary populations, which are almost always permanent.

5. Invasive and over-abundant native animal control

Killing exotic, non-native, extralimital or over-abundant native animals is practiced widely.

However, the motivation for this type of killing is distinct from other forms of animal killing.

☛ continued P23

Indirect killing occurs when non-target animals die from accidental poisoning associated with use of the drugs, pesticides and herbicides used to protect animals and plants or as bycatch in traps intended for damage-causing animals. Photo: Emerson Begnini

AusScan Online

TABLE 1. AusScan Early Harvest Report January 2024

Protein Moisture and Energy Values for Cereal Grains

Australasian Pork Research Institute Ltd APRIL

Barley

Region*	Protein % Mean	Protein % SD	Protein % Min	Protein % Max	Moisture % Mean	Moisture % SD	Moisture % Min	Moisture % Max	Pig Faecal DE MJ/Kg Mean	Pig Faecal DE MJ/Kg SD	Pig Faecal DE MJ/Kg Min	Pig Faecal DE MJ/Kg Max	Pig Ileal DE MJ/Kg Mean	Pig Ileal DE MJ/Kg SD	Pig Ileal DE MJ/Kg Min	Pig Ileal DE MJ/Kg Max	IDE/FDE Ratio Mean	IDE/FDE Ratio Min	IDE/FDE Ratio Max	Broiler AME MJ/Kg Mean	Broiler AME MJ/Kg SD	Broiler AME MJ/Kg Min	Broiler AME MJ/Kg Max	Broiler AME Index Mean	Broiler AME Index SD	Broiler AME Index Min	Broiler AME Index Max
NSW1	8.8	0.87	7.4	11.7	11.8	0.63	10.6	13.5	13.2	0.13	13.0	13.9	10.4	0.23	10.0	11.9	0.79	0.77	0.86	12.0	0.21	11.3	12.8	69.3	2.1	62.3	75.6
QLD	9.8	1.20	8.3	12.1	10.1	0.88	8.6	11.2	12.4	0.16	12.1	12.7	10.1	0.28	9.7	10.7	0.81	0.80	0.84	11.5	0.27	10.9	11.8				
QLD1	9.6	1.06	8.1	11.7	10.4	0.74	8.8	11.4	12.5	0.15	12.2	12.7	10.2	0.16	9.9	10.5	0.82	0.81	0.82	11.4	0.31	10.8	11.8				
SA	9.9	0.78	8.7	10.5	11.1	0.93	10.1	12.3	12.4	0.20	12.2	12.6	10.4	0.17	10.3	10.7	0.84	0.85	0.85	11.9	0.22	11.6	12.1				
SA1	9.8	1.36	5.3	13.1	12.3	0.98	8.7	14.7	13.3	0.18	12.9	13.9	10.9	0.32	10.0	12.6	0.82	0.78	0.90	12.2	0.58	10.3	15.4	66.7	4.9	52.0	91.6
SA2	9.6	1.66	7.9	12.8	11.3	1.44	9.5	14.0	13.3	0.17	13.0	13.7	10.8	0.35	10.3	11.6	0.82	0.79	0.85	12.2	0.63	11.0	13.9	66.4	4.9	56.9	77.9
VIC	9.4	1.17	7.4	11.8	10.5	0.62	9.5	11.8	12.6	0.14	12.1	12.9	10.4	0.18	9.9	10.9	0.83	0.82	0.84	11.6	0.31	11.0	12.2				
VIC 2	9.4	1.15	6.8	11.2	10.6	0.69	9.4	12.4	12.4	0.17	12.1	12.7	10.3	0.26	9.6	10.7	0.83	0.80	0.84	11.7	0.26	11.2	12.3				
VIC 3	9.2	1.13	6.5	10.8	10.3	1.14	8.6	12.8	12.6	0.38	12.2	13.8	10.6	0.56	9.7	12.0	0.84	0.79	0.87	11.7	0.56	10.9	13.2				

Sorghum

Region*	Protein % Mean	Protein % SD	Protein % Min	Protein % Max	Moisture % Mean	Moisture % SD	Moisture % Min	Moisture % Max	Pig Faecal DE MJ/Kg Mean	Pig Faecal DE MJ/Kg SD	Pig Faecal DE MJ/Kg Min	Pig Faecal DE MJ/Kg Max	Pig Ileal DE MJ/Kg Mean	Pig Ileal DE MJ/Kg SD	Pig Ileal DE MJ/Kg Min	Pig Ileal DE MJ/Kg Max	IDE/FDE Ratio Mean	IDE/FDE Ratio Min	IDE/FDE Ratio Max	Broiler AME MJ/Kg Mean	Broiler AME MJ/Kg SD	Broiler AME MJ/Kg Min	Broiler AME MJ/Kg Max	Broiler AME Index Mean	Broiler AME Index SD	Broiler AME Index Min	Broiler AME Index Max
QLD	9.7	0.76	8.7	13.2	12.1	0.84	10.2	13.5	14.3	0.14	13.9	14.6	12.0	0.24	11.5	12.5	0.83	0.83	0.86	14.5	0.31	13.5	15.0				
QLD1	10.1	0.42	9.4	10.5	11.8	0.95	10.7	12.5	14.4	0.09	14.3	14.5	12.1	0.05	12.1	12.2	0.84	0.85	0.84	14.7	0.11	14.5	14.8				

Triticale

Region*	Protein % Mean	Protein % SD	Protein % Min	Protein % Max	Moisture % Mean	Moisture % SD	Moisture % Min	Moisture % Max	Pig Faecal DE MJ/Kg Mean	Pig Faecal DE MJ/Kg SD	Pig Faecal DE MJ/Kg Min	Pig Faecal DE MJ/Kg Max	Pig Ileal DE MJ/Kg Mean	Pig Ileal DE MJ/Kg SD	Pig Ileal DE MJ/Kg Min	Pig Ileal DE MJ/Kg Max	IDE/FDE Ratio Mean	IDE/FDE Ratio Min	IDE/FDE Ratio Max	Broiler AME MJ/Kg Mean	Broiler AME MJ/Kg SD	Broiler AME MJ/Kg Min	Broiler AME MJ/Kg Max	Broiler AME Index Mean	Broiler AME Index SD	Broiler AME Index Min	Broiler AME Index Max
SA1	10.7	1.27	8.6	13.5	12.5	1.40	9.3	15.2	13.4	0.20	13.0	13.7	11.5	0.42	10.4	12.2	0.86	0.80	0.89	12.7	0.47	11.9	13.3	71.7	3.8	63.2	76.4

Wheat

Region*	Protein % Mean	Protein % SD	Protein % Min	Protein % Max	Moisture % Mean	Moisture % SD	Moisture % Min	Moisture % Max	Pig Faecal DE MJ/Kg Mean	Pig Faecal DE MJ/Kg SD	Pig Faecal DE MJ/Kg Min	Pig Faecal DE MJ/Kg Max	Pig Ileal DE MJ/Kg Mean	Pig Ileal DE MJ/Kg SD	Pig Ileal DE MJ/Kg Min	Pig Ileal DE MJ/Kg Max	IDE/FDE Ratio Mean	IDE/FDE Ratio Min	IDE/FDE Ratio Max	Broiler AME MJ/Kg Mean	Broiler AME MJ/Kg SD	Broiler AME MJ/Kg Min	Broiler AME MJ/Kg Max	Broiler AME Index Mean	Broiler AME Index SD	Broiler AME Index Min	Broiler AME Index Max
NSW1	10.2	0.64	7.9	11.4	11.5	0.41	10.6	12.9	13.8	0.16	13.0	14.0	11.8	0.30	10.4	12.1	0.86	0.80	0.87	12.8	0.20	12.0	13.2	76.2	2.0	68.8	81.8
QLD	12.4	1.16	8.3	16.3	10.3	1.05	7.9	12.6	13.8	0.13	12.6	14.6	11.9	0.19	10.5	12.2	0.86	0.83	0.84	12.9	0.32	11.6	14.6				
QLD1	13.0	1.21	11.3	16.0	10.0	1.12	8.7	11.7	13.8	0.09	13.5	13.9	11.9	0.13	11.6	12.1	0.86	0.86	0.87	12.6	0.23	12.3	13.0				
SA	11.9	1.26	9.1	17.1	10.6	1.07	8.3	19.0	13.8	0.05	13.6	13.9	12.0	0.19	11.6	12.5	0.87	0.85	0.90	12.8	0.27	12.2	14.5				
SA1	11.2	1.49	8.2	17.5	12.1	1.30	8.7	14.6	13.7	0.17	13.1	14.0	12.0	0.39	10.4	12.9	0.87	0.79	0.92	12.9	0.70	8.6	14.4	72.6	5.7	38.9	83.1
SA2	12.2	1.65	9.5	17.6	11.7	1.17	8.9	14.0	13.7	0.18	13.0	14.0	12.0	0.37	10.7	12.6	0.87	0.82	0.90	12.9	0.80	9.4	14.4	73.3	6.9	41.7	84.7
VIC	10.5	0.86	8.2	13.3	10.5	0.72	8.9	13.0	13.8	0.07	13.5	14.0	11.9	0.11	11.6	12.5	0.86	0.86	0.89	12.7	0.22	12.4	13.7				
VIC 1	11.5	0.92	9.1	14.2	11.4	1.00	9.7	13.4	13.6	0.15	13.2	13.8	12.1	0.17	11.8	12.6	0.89	0.90	0.91	13.0	0.20	12.5	13.4				
VIC 2	10.5	1.04	8.0	14.3	10.8	0.69	9.5	12.9	13.8	0.05	13.6	13.9	11.8	0.12	11.5	12.2	0.86	0.84	0.88	12.8	0.23	12.4	13.9				
VIC 3	10.8	1.02	8.5	18.8	10.7	0.82	7.3	15.3	13.7	0.21	12.1	15.6	11.9	0.39	7.0	13.4	0.87	0.58	0.86	12.8	0.32	11.3	15.5				

* Each row represents a Feed Mill in the Region, for example QLD and QLD1 represent different feed mill companies within the state.

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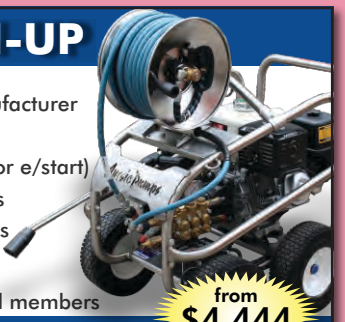

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Why humans kill animals - first five reasons

☛ from P20

Animals might be killed by humans simply because they are exotic or 'not from here', but they are usually killed because their invasive characteristics and traits raise concern that they will cause subsequent issues that will require further and otherwise avoidable animal killing.

These concerns include the protection of human health and safety (reason 2), agricultural production (reason 3), threatened species protection (reason 6) or the prevention of ecosystem collapse or shifts characterised by the mass killing and loss of many local animals.

Many invasive and overabundant animals create real and perceived undesirable impacts on the environment, human economies and on social or cultural values.

These impacts include the harm, killing and death of relatively large numbers of other animals that could otherwise be alleviated and avoided by killing relatively small numbers of invasive and overabundant native animals.

Killing invasive animals typically aims to prevent, for example, any potential negative impacts on agriculture, native species, wilderness areas or human health.

Directly and indirectly, killing invasive and species may be avoidable, but doing so will often yield unavoidable adverse consequences for both humans and animals.

Though it may sometimes be possible to undertake invasive animal control in ostensibly non-lethal ways, such as trap-neuter-release or translocation, these practices are often ineffective and typically cause greater harm to animals than simply killing them.

Attempted 'non-lethal' exclusion of invasive animals by creating landscapes of fear can create serious animal welfare issues, in addition to indirect killing.

So, while restoring ecosystems through restoration of native carnivores and herbivores might 'naturally' eliminate invasive and overabundant animals, this does not evade animal killing given subsequent predation and competition – it merely outsources animal killing from humans to animals or other ecological processes (for example predation, starvation, disease).

Sometimes it is simply impossible to remove all invading animals without killing at least some of them.

Humans do not need to kill or exclude invasive or overabundant invasive animals like they need to eat or protect themselves (see reasons 1-3), but past experience indicates that allowing invasive and overabundant native animal populations to grow unchecked usually results in ecosystem degradation, including widespread harm and death to many other animals and to the agricultural products that humans rely on for food (reason 3).

Next month, Part 3 will cover the remaining five reasons as to why humans kill animals and why we can't avoid it.

Ben Allen
University of Southern Queensland

Associate Professor Benjamin Allen, research co-author and wildlife management and research team leader at the Institute for Life Sciences and the Environment at the University of Southern Queensland.

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