

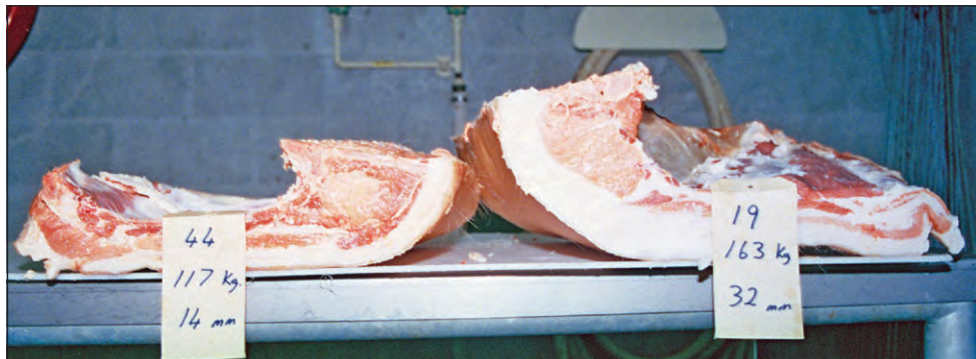


Australian Pork

NEWSPAPER



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Calculating carcass value solely using P2 fat measurements poorly reflects lean meat yield in the fore, belly and hind sections of the carcass and fails to quantify the full variation in carcass value in pork. Photo: DAFWA

ALMTech research opens way for new pork carcass measurements

NEW sensor technology is now at hand for pork processors to accurately predict lean meat yield, potentially opening the way to capture more value from each carcass.

The Advanced Livestock Measurement Technologies research program has assessed three potential candidates for measuring pork carcass attributes, with the Danish AutoFom III system delivering accurate predictions for lean meat yield that stood up to comparison with the gold standard of computed tomography carcass scanning.

One of the lead ALMTech researchers on the project Dr Fiona Anderson said, "AutoFom was the best performed technology for representing whole carcass lean meat percentage, giving this technology improved capacity to differentiate pork carcass value."

The AutoFom III also does a good job of estimating lean percentage in specific carcass sections, such as the loin, fore, hind and belly sections and "as such, is a good option for abattoir prediction of pork composition," Dr Anderson said.

The ALMTech program

was established to develop advanced measurements of meat quality and quantity that will enhance the Australian beef, lamb and pork industries' ability to respond to demands and capture value-chain price differentials.

It was supported by funding from the Australian Government Department of Agriculture, Fisheries and Forestry as part of its Rural Research and Development for Profit programme, in partnership with Meat and Livestock Australia, Australian Meat Processor Corporation, Australian Pork Limited, commercial companies, state departments and universities.

APL research and innovation program manager Dr Vaibhav Gole said the involvement of pork processing companies SunPork, Rivalea and Linley Valley Pork during the data collection process by Murdoch University researchers had ensured the evaluation of the new carcass assessment technologies was relevant to real-world operating systems.

"The research has delivered the pork processing sector a viable new option for measuring lean meat

yield and considering new ways of evaluating carcass value," Dr Gole said.

"The research has shown that calculating carcass value solely using P2 fat measurements poorly reflects lean meat yield in the fore, belly and hind sections of the carcass and fails to quantify the full variation in carcass value in pork."

Dr Gole said the findings also presented challenges for the sector when trying to balance the pursuit of higher lean meat yield with loin intramuscular fat levels – a key indicator of tenderness and eating quality.

"There is a negative relationship between lean meat percentage and loin IMF, indicating that balanced selection is required to optimise both lean meat yield and IMF, and therefore eating quality."

"The ability to maintain selection pressure on lean meat yield while improving meat quality through increases in IMF will rely on the precise and independent measurement of these two traits," Dr Gole said.

Any enquiries can be directed to Michael Thomson at CQUniversity on m.thomson@cqu.edu.au or 0408 819 666.

Standing firm against radical activism and upholding welfare standards in pork industry

LAST month, the pork industry – represented by Australian Pork Limited and key industry members – reiterated the industry's unwavering commitment to upholding the highest standards of animal care during the Victorian inquiry into pig welfare.

Victorian pig farmers and representatives from APL, Rivalea JBS, SunPork, Australasian Pork Research Institute Limited, pork veterinarians, the Australian Meat Industry Council, Victorian Farmers Federation and VFF Pig Group Committee presented before the Victorian Legislative Council Economy and Infrastructure Committee.

We all know that this inquiry should never have gotten off the ground but regardless, it has been a privilege to stand beside members of the pork industry in putting our best foot forward.

It was our industry at its absolute best, coming together as one.

Speaking before the committee, industry representatives stood firm and refuted extreme activist calls to phase out pork production and end commercial livestock farming, articulating the pork industry's commitment to high standards for its farming practices, which remain backed by the latest science, innovation and ongoing investment.

The Australian pork industry has remained under what feels like a siege by activist groups, whose ideology to end commercial pig production was



Point of View

by MARGO ANDRAE
CEO



loudly expressed during their witness hearings at the inquiry.

Even during the inquiry process, these groups repeatedly committed acts of trespass, vandalism and intimidation across the state.

We are incredibly disappointed by this, these parties repeatedly fail to respect the law of the very government they presented to.

Our stance remains unchanged – radical activism that resorts to harassment, trespassing and illegal activities will not be tolerated, and we continue to work with stakeholders to push that regulations and prosecutions against farm trespass and livestock theft be upheld and enforced.

By highlighting the misleading nature of their rhetoric and the questionable accuracy of their information, we continue to foster an evidence-based approach to animal advocacy and provide the scientific backing of the practices we use and why we use them.

The pork industry recognises the importance of transparency and accountability.

It actively participates

in inquiries such as this, providing insights into industry practices and reaffirming its commitment to welfare standards backed by science and research.

In the face of ongoing challenges posed by radical activists, the pork industry remains firm in its mission to lead welfare standards, promote sustainable farming practices and provide consumers with high-quality pork products.

We restated our position on engagement – we are open to constructive dialogue with respected animal welfare organisations that share the goal of enhancing animal welfare outcomes without seeking to cease commercial livestock production entirely.

I acknowledge those farmers and industry representatives who appeared, for their courage in the face of illegal activism and threats.

They should be commended for their bravery and passion.

By standing firm against intimidation and misinformation, we aim to safeguard the industry's integrity while continuing to meet the needs and preferences of consumers across Australia.



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The Stockyard Team are looking forward to catching up with all our customers at Food with Purpose 2024 from May 13 to 15.



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Pork Industry Calendar of Events

2024

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

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

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

How to supply event details:
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EvokeAg 2024 showcases agricultural opportunities

EVOKEAG 2024 proved to be an exceptional gathering that brought together diverse stakeholders from the agriculture sector, including industry leaders, peak bodies, research institutes and innovative start-ups, all united in their commitment to address challenges and unearth opportunities for the prosperity of Australian agriculture.

The plenary sessions were a focal point of engaging discussions, with a predominant emphasis on sustainability.

The conversations delved into the pivotal role of data digitalisation, collection and traceability in validating sustainability claims, thereby opening new markets and segments.

The transformative power of artificial intelligence was also explored, highlighting its potential to enhance efficiency, production and



by **MARZIO MAGISTRELLI**
BI Director

resilience across the agrifood supply chain.

The responsible utilisation of AI-driven innovation emerged as a key theme, emphasising agriculture's role in tapping into new possibilities.

Edwina Beveridge took centre stage discussing circularity models implemented on her farms.

This included the innovative conversion of methane gas from pig manure into electricity and utilising waste products for pig feeds.

Startup Alley showcased a remarkable

line up of agrifood tech companies presenting ground-breaking innovations aimed at addressing global agrifood challenges, with some holding promising options for the pork industry.

Startup Alley not only featured agrifood tech start-ups but also live demonstrations of tools developed by peak bodies.

Noteworthy among these was the Environmental Accounting Platform created by Agricultural Innovation Australia, with support from various research

and development corporations, including Australian Pork Limited.

This platform serves as a comprehensive sector-wide carbon calculation engine, enabling growers to understand and mitigate their carbon footprint.

Another highlight was the AgTech ROI Calculator, a partnership between Southern NSW Innovation Hub and Meat and Livestock Australia.

Fuelled by direct input from producers, this online tool estimates the costs and benefits of ag tech solutions, providing a valuable resource for decision making.

EvokeAg extended beyond the main event with numerous sideline activities that all contributed to a rich experience.

The Agrifood Tech Innovation Exchange by the Commonwealth Scientific and Industrial Research Organisation,

the GrowAg update session, the EvokeAg Festival of Food celebrating fine food from Western Australia and the Charles Sturt University canapes event, announcing a new investment and partnership program in digital farms, renewables, cool soils and sustainable energy.

Looking ahead, EvokeAg 2025 will be held in Brisbane on February 19-20 and promises to be another insightful event.

Anticipation is high for an even more global showcase, featuring start-ups from overseas.

EvokeAg continues to be an ideal platform for fostering collaborations that will drive impactful innovations for the pork industry and the broader agriculture sectors.

Eagerly await the program for EvokeAg 2025 to explore more opportunity in innovation for the pork industry. 🐷

Rebound predicted for Australian agriculture

AUSTRALIA'S farm, fisheries and forestry sectors are set to rebound in 2024-25.

The most recent Australian Bureau of Agricultural and Resource Economics and Sciences Agricultural Commodities and Australian Crop reports are predicting that the gross value of production in 2024-25 will again increase after poor seasonal conditions affected outcomes in 2023-24.

ABARES executive director Dr Jared Greenville said a rebound of up to 6 percent is predicted, bringing the gross value of Australian farms, fisheries and forestry to \$90.8 billion, the third

highest on record.

"The gross value of Australian crops production, as well as livestock and livestock products, are both estimated to increase to \$48.7 billion and \$36.2 billion respectively," Dr Greenville said.

"For our livestock production and livestock products industries this is a record high and the result of expected favourable climate conditions and improving prices.

"Above-average summer 2023-24 rainfall and subsequent build-up of soil moisture reserves in eastern Australia is expected to provide a good incentive for planting ahead of

the 2024-25 winter crop season," he said.

"Broadacre farm cash incomes are also set to rebound in 2024-25 to \$192,000, after significant falls in 2023-24.

"The forecast improved growing season climate conditions and the expected turnaround in livestock prices in 2024-25 will drive increases in farm income."

While the 2024-25 outlook is favourable for production, forecasts predict exports will continue to decline.

"In 2023-24, the value of Australia's agriculture, fisheries and forestry exports is forecast to fall by 13 percent to \$71.6 billion, but this

follows the record high the industry experienced the previous year," Dr Greenville said.

"This decline is expected to continue, with an additional 5 percent decline expected, leaving the 2024-25 value at \$68.1 billion."

The ABARES Agricultural Commodities Report contains ABARES forecasts for the value, volume and price of Australia's agricultural production and exports, as well as forecasts for farm cash incomes.

Estimates include a detailed analysis of 2024-25 and 5-year projections for commodities outlook under two possible scenarios for

domestic and global production and macroeconomic conditions.

The Australian Crop Report is released quarterly and includes forecasts for crop area planted, expected yields and production levels in each relevant Australian state.

The most recent Agricultural Commodities Report can be read at agriculture.gov.au/abares/research-topics/agricultural-outlook/data/agricultural-commodities

The Australian Crop Report can be read at agriculture.gov.au/abares/research-topics/agricultural-outlook/australian-crop-report

ABARES



Australian Government
Department of Agriculture, Fisheries and Forestry
ABARES

Outlook for pig meat

Category	unit	2021-22	2022-23 s	2023-24 f	2024-25 f	2025-26 z	2026-27 z	2027-28 z	2028-29 z
Over-the-hooks price									
nominal	c/kg (cw)	354	378	377	374	373	364	357	376
real a	c/kg (cw)	395	394	377	362	352	335	320	329
Sow numbers b	'000	312	302	309	312	330	330	323	314
Slaughtering	'000	5,502	5,644	5,755	5,920	6,268	6,606	6,768	6,776
Production	kt (cw)	439	453	464	476	505	535	548	555
Consumption per person	kg (cw)	28.7	26.8	25.5	25.9	26.7	27.4	27.8	28.4
Import volume	kt (sw)	175	157	140	146	151	157	164	179
Export volume	kt (sw)	28.8	33.8	32.9	34.4	39.5	47.1	49.7	55.0
Export value									
nominal	\$m	122	144	136	142	164	188	195	220
real a	\$m	136	150	136	138	154	173	175	192

a In 2023-24 Australian dollars. b At 30 June. f ABARES forecast. s ABARES estimate. z ABARES projection.

Note: Values shown for projection years in this table are for the baseline scenario considered in this edition of the Agricultural Commodities Report. An explanation of the scenarios is available in the Agricultural Overview chapter.

Sources: ABARES; ABS; Australian Pork Limited

ABARES outlook for pork meat.

Australian Pork

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Safety is paramount in Australian agriculture

AS part of the University of Sydney's School of Rural Health, AgHealth Australia farm safety research manager Kerri-Lynn Peachey is happy to see the number of on-farm deaths trending in the right direction, though she knows there is still much work to be done to protect those working in Australian agriculture.

Since 2001, 1742 individuals have tragically lost their lives due to non-intentional incidents on farms in Australia, with 32 deaths reported in 2023 alone. This figure, though declining, serves as a stern reminder of the inherent risks faced by agricultural workers on a daily basis.

AgHealth Australia's 2023 Non-Intentional Farm-Related Incidents in Australia report, funded by AgriFutures Australia, plays a pivotal role in understanding and presenting farm-related injuries and fatalities.

By leveraging this data, we can work together to create safer and healthier work environments for farmers, workers and visitors.

Though the 2023 results are somewhat positive, with farm-related fatalities having halved since 2018, we still need to be cautious, as we are missing clear evidence to support the decrease.

But while there is no definitive factor for the reduction, research and development efforts focusing on safety concerns, regulations and enforcement, economic incentives, awareness campaigns, training, education and a cultural shift have all played an important role.

Leading causes of farm-related deaths

Quadbikes and tractors continue to be the leading causes of farm-related deaths in Australia.

With regard to injuries alone, quadbikes are the leading cause by a significant margin, followed by horses, cattle, motorbikes and tractors.

These five agents alone accounted for 72 percent of all incidents reported in 2023.

To address the dangers or risks posed by quadbikes and tractors, targeted safety programs and evidence-based solutions are necessary.

These include fitting older quadbikes with operator protection devices, promoting helmet use and implementing rollover protection structures on tractors.

Seatbelt use is also crucial in preventing injuries on farms, serving as a vital safety measure against potential consequences.

In addition to physical safety measures, education and training

are also essential components of any farm safety strategy.

By providing workers with the knowledge and skills they need to identify and mitigate risks, we can empower them to protect themselves and their colleagues from harm.

While progress has been made, continued investment in research, education and advocacy is essential to identify and address emerging risks in the agriculture sector.

Farm safety is not only a matter of statistics

Farm safety is about protecting the lives and livelihoods of those who work tirelessly to put food on our tables.

Despite the progress made in recent years, there is still work to be done to ensure that

every farmer returns home safely at the end of the day.

Of course, safety is not only the responsibility of individual workers – it requires a coordinated effort from all stakeholders in the agriculture industry, including farmers, industry organisations, government agencies and the wider community.

By working together, we can create a culture of safety that prioritises the wellbeing of agricultural workers and reduces the risk of accidents on farms.

Whether through research, education or advocacy, there is a role for everyone to play to ensure farming remains a safe and sustainable profession for generations to come.

AgriFutures Australia



Work still to be done to protect those working in Australian agriculture, with quadbikes and tractors the leading causes of farm-related deaths in Australia.



Trapped pigs. Photo: Lachlan Marshall

Existing management efforts may not be enough to control feral pig populations

AT the recent online stakeholder forum, held on March 5, 2024, presentations made by Local Land Services NSW Feral Pig Coordinator Bec Gray, feral pig management specialist Darren Marshall and Southern Queensland Landscapes senior projects officer Lachlan Marshall addressed the question of whether existing management efforts were enough to control feral pig populations.

Watch the presentation at feralpigs.com.au/stakeholder-forum/#ForumMarch24

Key outcomes from a collaborative program – between Northern Tablelands Local Land Services, Southern Queensland Landscapes and land managers – that aimed to locally eradicate feral pigs within 5km and 10km buffer zones around a simulated foot-and-mouth disease outbreak point were discussed by Lachlan and Darren.

This nil-tenure program covered an area of 66,334ha and involved 44 private land holdings, three travelling stock routes and three national parks.

This site was one of 13 intensive pest control zones that were implemented across each Local Land Services region in NSW in 2022/23 as part of the foot-and-mouth disease preparedness and prevention project.

As described by Bec, these zones were an opportunity to test whether local eradication of pest animals by applying pest animal control techniques around a theoretical infected premise could achieve a >95 percent reduction of pest animals.

For this specific program, various control techniques – including aerial shooting, 1080 and Hoggone baiting, trapping and thermal ground shooting – were used over a six-month period to remove feral



NATIONAL FERAL PIG ACTION PLAN

by HEATHER CHANNON National Feral Pig Management Coordinator



pigs within these buffer zones.

A thermal drone was used to monitor populations of feral pigs over five survey nights, both before and after control activities were undertaken.

Forty field cameras were deployed in the region to capture information about population change over time, as well as 62 traps.

Each trap was free fed for the first two weeks of each month.

The free feed used was a mixture of wheat, fermented wheat and fermented corn.

Four weekly aerial shooting operations over an eight-day period were conducted between February and May 2023.

On-ground management techniques were applied for three weeks between each aerial shooting operation.

Across the whole area, a total of 1933 feral pigs were removed by aerial shooting and 92 were removed by trapping.

With declining numbers removed by aerial shooting as well as trapping over this four-month period, it was thought that the intensive control efforts were making substantial impacts on the feral pig population.

A total of 32 grain dumps were then placed in the landscape to remove any animals remaining that were too smart to be removed from the air or in traps.

Fermented grain topped with molasses was used.

Only three grain dumps were hit by feral pigs, resulting in 20 pigs being removed by 1080 grain and three using Hoggone.

Despite this extensive and costly effort, monitoring using the thermal drone estimated that the population had been reduced by only 60 percent – a very scary outcome!

It's known that at least 70 percent of the population needs to be removed annually to suppress the growth potential of the population and prevent its rapid recovery.

A higher population reduction target of >95 percent had been set by LLS for the overall program.

Based on this, the intensive effort did not achieve either of these objectives.

Understanding feral pigs in the landscape

Seventeen feral pigs in the 5km zone were fitted with GPS collars before the control activities were implemented.

This was done to monitor movement patterns during the intensive control period, their preferred habitat use during this time, understand their home range and core home range and finally, use of collared feral pigs as 'Judas' animals to locate any remaining animals in the landscape.

This movement data showed that when the helicopters were in the air, their movement in the landscape dramatically increased within their home range – settling down again two to three days after each aerial shooting operation had ceased.

The animals did not move from the control zone.

Interestingly, the chopper crew were unable to locate all of the

continued P5

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Existing efforts not enough to control feral pig populations

from P4

collared animals during the culling operations.

Of the 13 feral pigs collared in February 2023, only one was identified by the shooting team.

In May 2023, only five of the 17 feral pigs were located by the shooting team.

This highlights that we may be seeing only a quarter to a third of feral pigs in the landscape from the air.

These insights dispel myths that aerial shooting is 100 percent effective in reducing feral pig populations.

In fact, the efficacy of aerial shooting is likely to be far lower than this.

Even when provided with GPS coordinates for the remaining 12 pigs in May 2023, the shooting team found only eight animals, emphasising how evasive and intelligent feral pigs are.

The future of feral pig management

This LLS-led project engaged the local community but did not directly involve local land managers in applying the control methods.

The challenge now is in how the effort in programs such as this can be maintained into the future, so that lowered populations can remain suppressed.

It's known that land managers place more credence in their peers and neighbours than others, including technical specialists.

Darren emphasised that gaining the trust of land managers is integral for programs to try new approaches as information is uncovered about feral pig behaviour, including how they use resources in the landscape.

Darren also stated that it would be a complete game-changer if each population of feral pigs

could be tracked and monitored to understand where their core home ranges are, what habitats are being used and when to plan effective cross-tenure coordinated management programs that efficiently utilise the most appropriate best practice methods.

We are still a long way from this.

The key messages from this program, while not new, are critical:

- A huge amount of effort is required to ensure effective feral pig management
- All land managers need to be active in vertebrate pest management

- More people need to do more, existing efforts are not enough

- Gaps in program participation impact the overall success of control programs
- It is essential to work across all land boundaries, both private and public

- Ad hoc and one-off programs are insufficient to manage feral pig populations
- Strategic timing of control techniques and alignment with the reproductive period of the pig is key to impact on future generations

- There is no silver bullet, combinations of control techniques must be used for overall effective population management
- Monitoring is an essential component of a feral pig management program

- Management activities need to be adaptive and informed by monitoring outcomes.

Feel free to contact me on heather.channon@feralpigs.com.au or call 0423 056 045 to discuss your feral pig management issues or any information presented in this article.

ProHand workshops

OVER the coming months, Australian Pork Limited will be running a series of ProHand train-the-trainer workshops, delivered by Scolexia and the Melbourne University Animal Welfare Science Centre.

These workshops are designed for those in the industry who support or deliver on-farm training or for those who manage and lead farm staff.

There is limited availability, so to register your interest, contact APL exten-

sion and capability manager Rowena Davis at rowena.davis@australianpork.com.au

- 9 April – Dalby, Queensland at Dalby Leagues Club, Orpen Street, Dalby QLD 4405

- 11 April – Perth, Western Australia, to be advised

- 30 April – Wagga Wagga, NSW at 1 Morgan Street, Wagga Wagga NSW 2650

- 2 May – Bendigo, Victoria at Lakeside Hotel, 286 Napier Street, Bendigo, VIC 3550.

Mismanagement leads to fine for former piggery boss

THE former director of a piggery near Kojonup in Western Australia was fined \$14,000 for illegally disposing of rotting carcasses and waste in the open air, which caused a stench that "negatively impacted" the health of local residents.

Torben Soerensen was the sole director of GD Pork and GD Pork Holdings, the occupier and operator of the piggery in Boscabel, when the offences occurred.

The companies, which no longer operate the piggery, were previously fined \$700,000 for emitting

"unreasonable odours" and failing to comply with an Environmental Protection Notice in 2017 and 2019.

Mr Soerensen was charged separately and pleaded guilty in Perth Magistrates Court in February to causing an "unreasonable emission with intent or criminal negligence."

According to the WA Department of Water and Environmental Regulation, the stink was caused by a combination of untreated pig waste in external uncovered tanks, ponds and an open pit in which pig carcasses were dumped.

The court was told Mr Soerensen could reasonably be expected

to have known that housing pigs without waste treatment infrastructure, discharging waste into uncovered areas and disposing carcasses "to the open air, in varying states of decomposition" would cause unreasonable emissions.

DWER executive director for compliance and enforcement Ruth Dowd said the smell emitted from the piggery had a "severe impact" on people living nearby.

"The odour could be smelled from up to 10km away," Ms Dowd said.

"Residents were forced to shut doors and windows to keep the smell out of their

homes, and some reported negative impacts to their health."

Ms Dowd said management of the piggery had "improved markedly" since new owners took over in 2019.

In handing down the fine, Magistrate Clare Cullen said the com-

pany had made a practical decision to receive piglets despite the piggery's infrastructure not being complete.

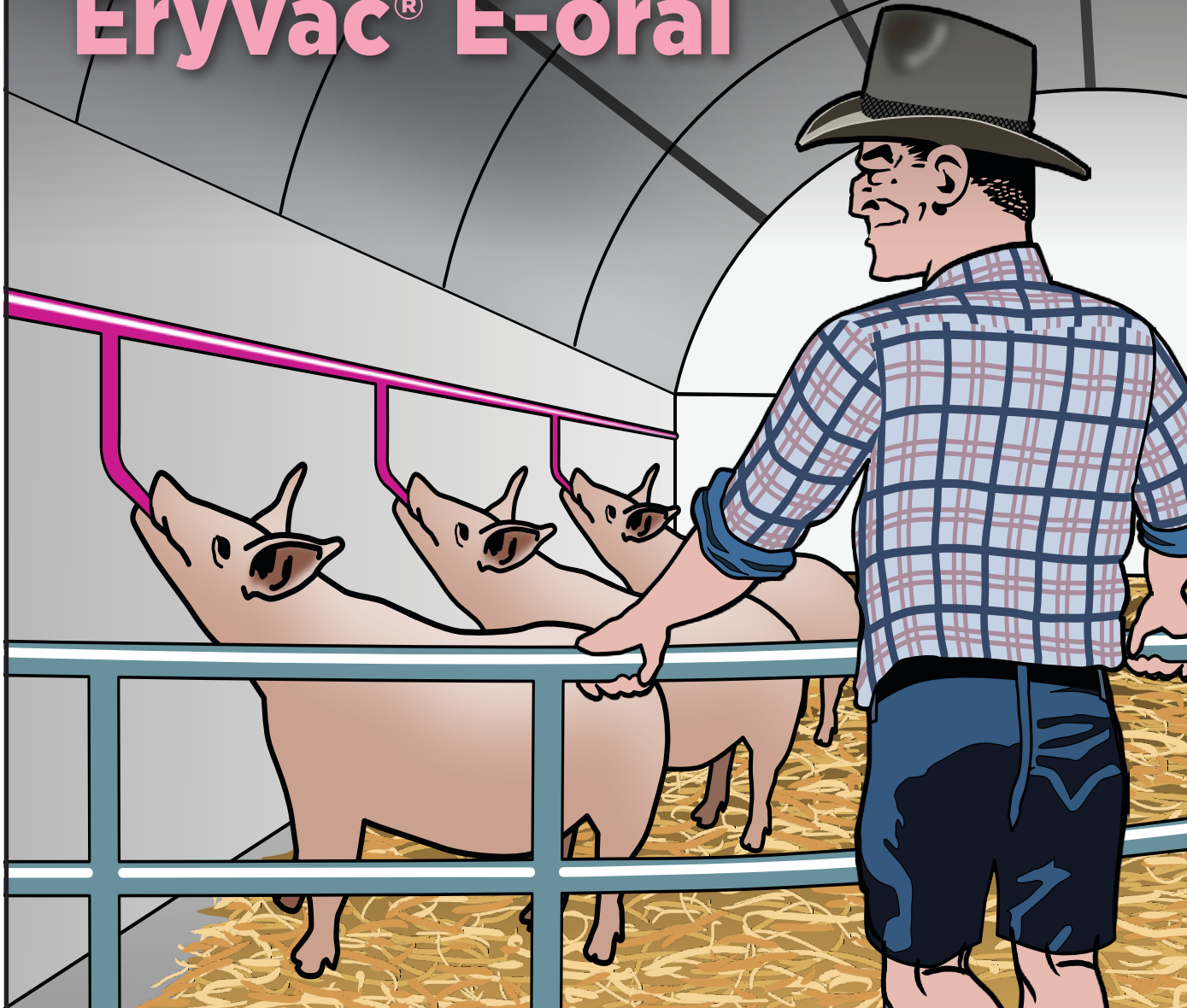
In those circumstances, the emissions that occurred were "entirely foreseeable," Ms Cullen said.

**Busselton
Dunsborough Times**



The stench was caused by a combination of untreated pig waste in external uncovered tanks, ponds and an open pit in which pig carcasses were dumped. Photo: DWER

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Appropriately and successfully carbon dioxide stunned then bled out while still unconscious is the desired outcome for pig, processor, producer and public.

Stunning alternatives revealed in breathtaking inquiry

AN inquiry into the welfare of farmed pigs in Victoria held hearings on March 12 and 13.

The Legislative Council Economy and Infrastructure Committee inquiry focussed on stunning methods, regulatory frameworks, breeding and housing practices, the impact of the 2017 industry-led phase-out of sow stalls and international industry best practice standards.

On Wednesday March 13, the Committee spoke with a range of industry representatives including Australian Pork Limited, Australian Meat Industry Council, SunPork and Victorian Farmers Federation.

Covering stunning methods, APL submitted that for more than two decades research had focused on alternative



Cant Comment
by BRENDON CANT

gases to carbon dioxide but none were yet available commercially.

The issues reported with alternative gases and mixtures included longer stunning times, shorter stun-to-stick intervals, conflicting results regarding aversion signs, higher cost of gases, difficulty in handling gases lighter than air and the negative impact on meat quality and the environment.

Here's how APL referenced the researched alternatives – some of which may be unfamiliar, hence I consider them worth revealing.

I commend APL for detailing them.

Argon and argon mixed with carbon dioxide

Argon is the most studied alternative gas for stunning.

There are conflicting results when the aversion of pigs to argon exposure was measured.

Though it is the most common noble gas in the atmosphere, it has limited availability and therefore increased cost compared to carbon dioxide.

Considering the scarcity and cost of industrial-grade argon, it is not considered a viable alternative for commercial stunning and little research into the use of argon for stunning has been conducted in the past 15 years.

Unless a technical solution can be found to recycle argon as it is being used, this is not likely to change.

As reported in different research studies, because

of longer stunning times, shorter stun-to-stick intervals, pigs regaining consciousness quickly, conflicting results on aversion signs and higher cost, the argon and argon

mixed with CO₂ is not a viable alternative to carbon dioxide stunning.

Helium

There has been only a single study under experimental conditions that evaluated the response to helium exposure to date.

Exposure for three minutes resulted reliably in unconsciousness, however the stun-to-stick interval was limited to 15-30 seconds.

Helium is lighter than air and a 98.5 percent mixture is needed to induce hypoxia – therefore difficult to manage in the stunning system.

The cost of helium, lower density than air and the short stick-to-stun interval for group stunning preclude helium as an alternative for commercial stunning.

Xenon

Xenon is the only 'inert' gas that is an anaesthetic under normobaric conditions.

It can be considered an ideal anaesthetic for human medicine, however the high cost of the gas has prevented its general use for anaesthesia.

Therefore, it is not a viable option as a commercial stunning agent within the livestock system.

Nitrogen and nitrogen/carbon dioxide mixture

Nitrogen is widely available because it is present in high concentrations – 79 percent – in atmospheric air.

However, N₂ is slightly lighter than air and is therefore hard to contain in a stunning pit.

The lowest level of oxygen that can be achieved in a pit filled with N₂ is 6 percent, which is insufficient to induce unconsciousness in pigs.

As inert gasses rely

on residual concentrations of oxygen below 2 percent, nitrogen is not suitable as a single gas contained in a pit in current commercial stunning systems.

With N₂/CO₂ gas mixtures, the time to unconsciousness is increased and consequently the total time to an aversive stimulus is increased.

Pigs return to consciousness sooner.

In addition, there are negative effects on the meat quality of N₂/CO₂ gas mixtures compared to 90 percent carbon dioxide.

Therefore N₂/CO₂ gas mixtures would have limitations as an alternative gas to high concentrations of CO₂ alone.

Nitrous oxide

Nitrous oxide (laughing gas) was found to be less aversive to piglets.

However, N₂O is considered a potent greenhouse gas, which limits the possibility of using it on a commercial scale.

I note that while the welfare of pigs pre-slaughter is in the spotlight, it must be acknowledged that though carbon dioxide stunning remains the industry endorsed stunning system, there have been documented significant failings where pig welfare has been cruelly compromised.

Admittedly, some of those failings have perhaps reflected poorly on the design, mechanics and maintenance of the stunning platforms or carousels, rather than the gas itself.

However, outcomes for the pigs so precariously placed must be addressed.

As they struggle, trapped and desperately gasping for air, priority one for industry and authorities must be prompt remediation.

Further, while public exposure and raised awareness of such system failings has typically come about by illegal abattoir premises entry and filming, the fact remains that pigs may squeal but nobody hears or sees their pain until it is exposed for what it is.

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CSIRO breakthrough to boost disease resistance in crops

SCIENTISTS at the Commonwealth Scientific and Industrial Research Organisation, Australia's national science agency, have achieved a breakthrough in molecular plant pathology, marking a technological leap forward for breeding durable disease-resistant crops.

Plant pathogens – organisms that cause plant diseases – greatly reduce agricultural productivity and are a persistent threat to global food security.

Annually, rust pathogens lead to crop losses of \$A1.53 billion worldwide.

The scientists developed a novel rapid

gene-screening platform that can identify new avirulence effector genes in plant pathogens, building on decades of CSIRO research in synthetic biology, genetics and molecular plant pathology.

CSIRO co-lead on the project Dr Peter Dodds said the new method would have a huge impact on future pathogen-resistant crop development.

“Our advanced screening technology represents a technological leap forward in our ability to study the processes that give plants enduring resistance to disease, enabling new genetic strategies to safeguard crop production and disease management in Australia

and abroad,” Dr Dodds said.

“This method enables high-throughput screening of complex genetic libraries in a plant’s cellular environment at an unprecedented speed.

“This enhances the ability to select more disease-resistant crops and aids efforts in pathogen surveillance.

“This technology positions CSIRO to tackle important biosecurity challenges as climate change increases risks for disease outbreaks.


“We have been able to identify several new fungal avr effector genes in the wheat stem rust pathogen, reducing the time from years or even decades to mere months,” he said.

Effector genes in

plant pathogens, such as rust fungus, encode proteins that suppress plant immune responses.

However, if the plant recognises these pathogen proteins, they can activate plant defence mechanisms and stop widespread infection.

Dr Thomas Vanhercke, who also co-lead the project, explained that while this study examined avr genes in a rust fungus that affects wheat, the same technique can be applied to other crops and pathogens.

The article ‘Pooled effector library screening in protoplasts rapidly identifies novel avr genes’ was published in *Nature Plants*.  CSIRO



Cheryl Blundell isolating wheat protoplasts at a CSIRO Black Mountain laboratory.

AusScan Online	TABLE 1. AusScan Early Harvest Report		Australasian Pork Research Institute Ltd APRIL																								
	Protein Moisture and Energy Values for Cereal Grains	February	2024																								
Barley																											
Region*	Protein %				Moisture %				Pig Faecal DE MJ/Kg				Pig Ileal DE MJ/Kg				IDE/FDE Ratio			Broiler AME MJ/Kg				Broiler AME Index			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
NSW1	8.7	0.77	7.5	11.8	11.5	0.56	10.3	13.9	13.2	0.09	13.0	13.6	10.5	0.22	10.1	11.6	0.80	0.78	0.86	12.0	0.18	11.7	12.6	69.3	1.8	65.3	73.6
QLD	10.1	1.15	8.2	12.3	10.5	0.79	8.1	11.8	12.5	0.22	12.2	13.7	10.2	0.31	9.6	11.9	0.81	0.79	0.86	11.5	0.40	10.6	13.2				
QLD1	9.7	1.41	8.0	14.2	10.5	0.72	9.1	12.0	12.6	0.14	12.2	12.7	10.2	0.20	9.8	10.6	0.81	0.80	0.83	11.3	0.34	10.8	12.0				
SA1	11.3	2.38	7.8	15.0	11.9	1.22	10.3	14.0	13.2	0.16	12.9	13.4	10.7	0.18	10.4	11.0	0.81	0.81	0.82	12.3	0.58	11.1	13.3	67.1	4.3	57.0	72.5
SA2	11.3	2.84	8.8	17.5	10.3	0.88	9.2	11.9	13.4	0.14	13.1	13.5	11.1	0.29	10.5	11.5	0.83	0.80	0.85	12.9	0.62	11.9	14.2	73.6	7.4	63.9	89.6
VIC	9.4	0.74	8.1	10.6	10.5	0.54	9.2	11.8	12.6	0.08	12.4	12.7	10.4	0.10	10.1	10.6	0.83	0.82	0.83	11.6	0.19	11.2	12.1				
VIC 1	9.1	0.93	7.6	10.4	11.1	0.53	10.4	12.4	12.4	0.09	12.3	12.6	10.5	0.16	10.2	10.8	0.84	0.83	0.85	11.8	0.26	11.4	12.3				
VIC 2	8.9	1.30	6.5	12.3	10.4	0.74	8.8	11.6	12.5	0.17	12.1	12.8	10.3	0.26	9.8	10.9	0.83	0.81	0.86	11.6	0.28	11.1	12.4				
VIC 3	9.5	0.87	7.6	10.8	10.2	1.30	7.8	13.1	12.5	0.21	12.1	13.6	10.5	0.36	10.0	12.1	0.84	0.83	0.89	11.5	0.55	10.6	12.9				
Sorghum																											
Region*	Protein %				Moisture %				Pig Faecal DE MJ/Kg				Pig Ileal DE MJ/Kg				IDE/FDE Ratio			Broiler AME MJ/Kg				Broiler AME Index			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
QLD	9.9	0.78	8.9	12.4	11.9	0.73	10.5	13.5	14.3	0.18	13.8	14.7	11.9	0.39	10.9	12.5	0.83	0.79	0.85	14.5	0.29	13.6	15.0				
Triticale																											
Region*	Protein %				Moisture %				Pig Faecal DE MJ/Kg				Pig Ileal DE MJ/Kg				IDE/FDE Ratio			Broiler AME MJ/Kg				Broiler AME Index			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
SA1	11.1	1.56	8.5	14.0	11.3	1.59	9.7	14.0	13.6	0.12	13.4	13.8	11.8	0.23	11.5	12.2	0.87	0.86	0.89	13.1	0.40	12.5	13.7	75.1	2.9	70.8	80.0
Wheat																											
Region*	Protein %				Moisture %				Pig Faecal DE MJ/Kg				Pig Ileal DE MJ/Kg				IDE/FDE Ratio			Broiler AME MJ/Kg				Broiler AME Index			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
NSW1	10.3	0.46	7.4	11.2	11.5	0.37	10.7	13.1	13.8	0.12	13.2	14.0	11.9	0.23	10.7	12.2	0.86	0.81	0.87	12.8	0.19	12.2	13.3	76.6	1.8	69.3	80.2
QLD	12.2	1.29	9.8	19.2	10.5	0.97	8.4	12.7	13.8	0.14	12.5	14.5	11.9	0.22	10.0	13.0	0.86	0.80	0.89	12.8	0.36	11.5	15.1				
QLD1	12.3	1.03	10.4	15.7	10.0	0.91	8.6	11.7	13.8	0.05	13.7	13.9	11.9	0.14	11.6	12.2	0.86	0.85	0.88	12.6	0.21	12.1	13.1				
SA	12.0	1.04	8.9	18.6	11.0	1.09	8.4	13.4	13.8	0.07	13.5	14.7	11.8	0.24	11.2	13.0	0.85	0.83	0.89	12.9	0.30	12.2	14.8				
SA1	11.1	1.88	7.8	16.1	11.6	1.62	8.6	15.0	13.8	0.17	13.2	14.1	12.1	0.34	10.8	12.7	0.88	0.81	0.90	13.1	0.59	10.6	14.1	74.2	4.4	53.6	80.9
SA2	11.0	1.57	7.7	16.7	12.2	1.52	8.7	14.8	13.8	0.10	13.3	13.9	12.1	0.23	11.3	12.5	0.88	0.85	0.90	13.2	0.32	12.5	13.8	75.3	2.6	70.3	87.1
VIC	10.7	0.96	7.3	13.6	10.3	0.72	8.6	12.4	13.8	0.13	12.6	14.2	11.9	0.15	10.3	12.2	0.86	0.82	0.86	12.7	0.24	11.4	13.4				
VIC 1	11.2	1.21	8.5	13.8	11.4	0.81	9.7	13.7	13.7	0.15	12.5	13.9	12.0	0.19	10.5	12.9	0.88	0.84	0.92	13.0	0.28	11.9	14.2				
VIC 3	11.2	1.07	8.9	18.7	10.5	0.76	8.0	12.3	13.7	0.17	12.2	14.7	11.9	0.20	10.4	13.1	0.87	0.86	0.89	12.7	0.33	11.5	14.8				

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

AusScan Online in vivo energy predictions similar for whole and ground grain paired samples

THERE has been feedback supplied by some AusScan Online customers that there may be differences between in vivo energy values for whole grain samples versus the corresponding ground sample.

To determine whether AusScan Online calibration predictions differed between whole and ground grain samples, the broiler apparent metabolisable energy and the pig faecal and ileal digestible energy predictions were compared for whole grain and the corresponding ground samples.

The samples were derived from cereal grains



Australasian Pork Research Institute Ltd APRIL

used in experiments one and two from the current SARDI-led layer AME calibration project funded by Australian Eggs and involving APRIL and AB Vista as project parties.

A total of 96 samples were sent to the NSW Department of Primary Industries EnviroAg Testing Services Laboratory at Wagga Wagga for near-infrared analysis using a FOSS XDS.

The paired samples of 48 ground grain (100µm) and 48 whole grain samples consisted of 20 wheat, nine barley, four triticale,

five sorghum and 10 maize.

Differences between ground and whole grain means for broiler AME, pig faecal and ileal DE predictions were assessed using a paired t-test and simple linear regression.

Mean differences between ground and whole grain samples for broiler AME (0.34) and pig faecal DE (0.19) contents were significant, whereas the pig ileal DE values were statistically similar (see Table 1).

However, the noted differences between

ground and whole grain energy predictions were small and less than the standard error of the corresponding calibration.

This indicates that one would expect similar predicted energy values for whole and ground grain samples.

Linear regression analyses of the paired samples of ground and whole grain energy values showed strong R2 values, indicating a high proportion of variance in the ground sample is explained by the whole grain sample (see Fig 1-3).

The coefficient of determination values were 0.92, 0.95 and 0.89 for broiler AME,

pig faecal DE and pig ileal DE contents respectively and indicate how closely the ground and whole grain predictions are aligned.

In conclusion, whether whole or ground grain samples are scanned using NIR, the AusScan Online predictions for broiler AME, pig faecal and ileal DE content are expected to be similar, as the differences in the predictions will be within the standard error of the calibrations.

For more information, contact commercialisation and research impact manager Dr Charles Rikard-Bell at c.rikardbell@april.org.au or 0439 513 723.

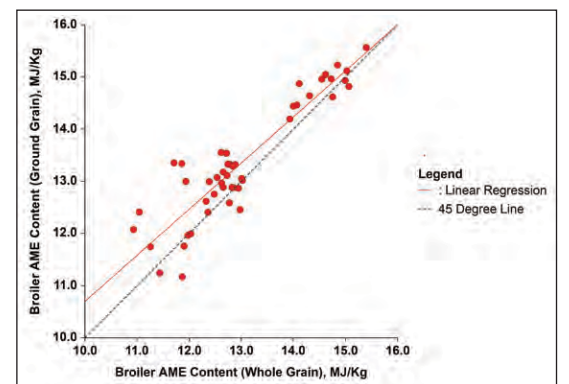


Fig 1. Linear regression plot of broiler AME values for ground grain and whole grain, where Broiler AME (Grain) = 0.88 x Broiler AME (Whole) + 1.85; R2 = 0.84; P < 0.001.

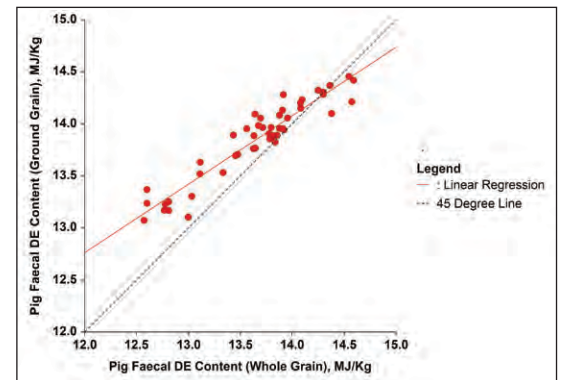


Fig 2. Linear regression plot of pig faecal DE values for ground grain and whole grain, where Pig Faecal DE (Grain) = 0.65 x Pig Faecal DE (Whole) + 4.87; R2 = 0.90; P < 0.001.

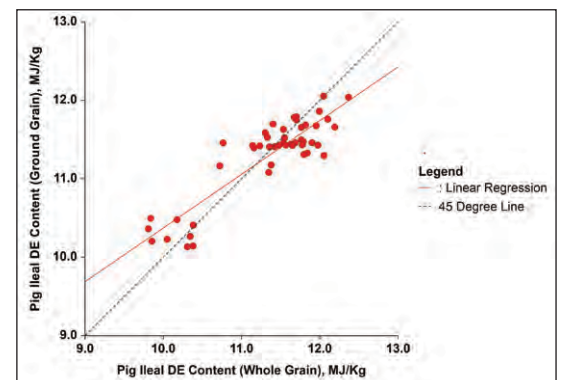


Fig 3. Linear regression plot of pig ileal DE values for ground grain and whole grain, where Pig Ileal DE (Grain) = 0.68 x Pig Ileal DE (Whole) + 3.53; R2 = 0.79; P < 0.001.

Parameter	$\mu_{\text{Ground}} \pm \text{S.E}$ (MJ/Kg)	$\mu_{\text{Whole}} \pm \text{S.E}$ (MJ/Kg)	Difference ($\mu_{\text{Ground}} - \mu_{\text{Whole}}$) (MJ/Kg)	Significance	Standard Error of the Calibration (MJ/Kg)
Broiler AME	13.40 ± 0.16	13.06 ± 0.17	0.34	P < 0.001	0.39
Pig Faecal DE	13.85 ± 0.05	13.66 ± 0.08	0.19	P < 0.001	0.21
Pig Ileal DE	11.30 ± 0.07	11.35 ± 0.10	-0.05	P = 0.282	0.39

Table 1: Statistical output from a paired t-test for mean in vivo energy values of 96 cereal grain samples of ground (n=48) and whole (n=48) and the corresponding standard error of the calibration for each parameter.

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AIA Environmental Accounting Platform launched at EvokeAg

AGRICULTURAL Innovation Australia launched the beta of its Environmental Accounting Platform at evokeAG in Perth recently.

AIA's EAP is Australia's first cross-sectoral carbon accounting engine and allows the calculation of a carbon footprint at a commodity, enterprise and whole of business level.

It provides an accessible and standardised approach to carbon accounting across different commodities, which is useful considering over 60 percent of pork producers run mixed farms.

The EAP was developed after a comprehensive discovery phase, where they interviewed over 140 people to understand the needs of producers.

Currently, it is hard to complete a carbon footprint assessment without paying for a consultant to undertake it.

The free method currently available is to use the University of Melbourne Greenhouse Accounting Framework tools, which are spreadsheet based and require a level of expertise to



by GEMMA WYBURN



complete and interpret.

The EAP takes these spreadsheets and creates an interface to enable an easier way to build a footprint for the products of interest.

The project was supported by Australian Pork Limited, which saw value in exploring an integrated option for mixed farms and to provide an option for all producers to be able to better understand their ballpark carbon footprint.

Once the platform is fully tested and live, APL will be supporting producers to understand the system through a focused extension campaign.

AIA has established a technical advisory panel of leading subject matter experts to advise on best practice and ensure the calculation models align with the latest science and are com-

pliant with the relevant national standards and protocols.

A separate EAP industry advisory panel is currently being formed to ensure the platform is relevant to specific sectors.

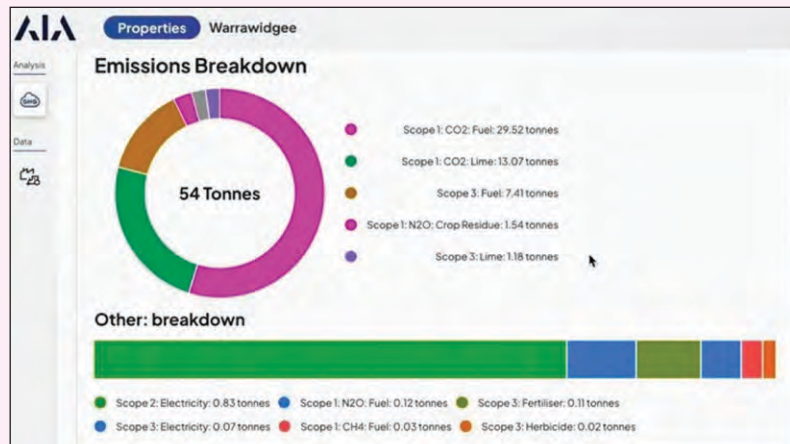
The beta version of AIA's EAP is currently live for grains, beef, sheep, cotton, goats, feedlot and sugar.

Pork, dairy, eggs, poultry, rice, fisheries, aquaculture, wine and other products are to follow in the next couple of months.

If you would like to register for access to the beta version, visit aginnovationaustralia.com.au/aiaeap

If you do try it out, I would love to hear what you think, so we can ensure it is the best it can be for pork producers.

Share your feedback via gemma.wyburn@australianpork.com.au



Agricultural Innovation Australia's EAP is the nation's first cross-sectoral carbon accounting engine, allowing the calculation of a carbon footprint at a commodity, enterprise and whole of business level.



Mr Littleproud said Labor should mirror what the coalition has announced, which will charge importers for the biosecurity costs they pose bringing their product to Australia.

Labor's embarrassing remodel of fresh food tax still hurts families and farmers

LABOR has reaffirmed it will introduce a fresh food tax that will increase the cost of fresh food for Australian families.

Leader of The Nationals David Littleproud said Labor's rejig of the biosecurity protection levy, announced in Senate Estimates, is still just another tax on farmers and will be passed onto consumers, which will create another cost-of-living pressure for families already struggling.

The new tax, set to be introduced to Parliament, will force Australian farmers to pay for the biosecurity costs of international importers, pushing up Australian-grown produce prices at supermarkets.

Labor will now set the tax rate as a proportion of an industry's average gross value of production over a three-year period, rather than a base rate of 10 percent on industry-led levies, due to confusion in the levy system and inequity.

Yet Minister for Agriculture, Fisheries and Forestry Murray Watt only announced the rejigged levy on Tuesday February 13.

The department told Senate Estimates it still needs to formally advise industry of their new rate over the coming days and months.

"Labor has been forced into a humiliating change on its fresh food tax, but it is still taxes, done a different way, that will commence on July 1," Mr Littleproud said.

Mr Littleproud said Labor should drop the tax and mirror what the coalition has announced, which will charge importers for the biosecurity costs they pose bringing their product to Australia.

"Minister Watt is out of his depth and doesn't understand the industry, yet he is still determined to tax our farmers and prioritise importers, calling the levy 'reasonable,'" he said.

"Sadly, we saw in Estimates both the department and the minister could not even explain what it means for the average tomato grower. "In what parallel universe would any Australian government tax their own farmers to pay for foreigners to bring their products into this country?"

It comes after more than 50 agricultural representative groups, including Grain Producers Australia, signed a joint letter to Prime Minister Anthony Albanese expressing unified opposition about the new tax.

Grain Producers Australia chair Barry Large said the new levy un-

dermines fundamental trust and confidence in the long-standing partnerships created through existing industry-imposed levies.

"Labor needs to listen to the strong concerns raised by all Australian producers and their representative groups by scrapping the new tax immediately," Mr Large said.

"Risk-creators are not contributing directly to ongoing costs of biosecurity incursions, unlike agricultural producers who pay emergency response levies and pay direct on-farm business costs.

"This funding, via a tax disguised as a levy, will force producers to pay more, while free riders continue getting a free ride."

Beef and watermelon Chinchilla farmer Terry O'Leary said the

tax would be another squeeze on farmers who are already struggling to make ends meet.

"I think it's disgusting the way they are treating us as a cash cow," Mr O'Leary said.

"You wouldn't go to the State of Origin and expect players to pay for security at the front gate out of their own back pocket, so why should farmers?"

"When you look at horticulture, 32 percent of the industry is considering leaving.

"It is ridiculous Labor is putting a tax on an industry that is shrinking, and this will affect our food security.

"It will cost farmers more money.

"Producers are getting the squeeze, and this is another squeeze that makes us compensate for other producers.

"It is so unfair."



Grain Producers Australia chair Barry Large said the new levy undermines fundamental trust and confidence.



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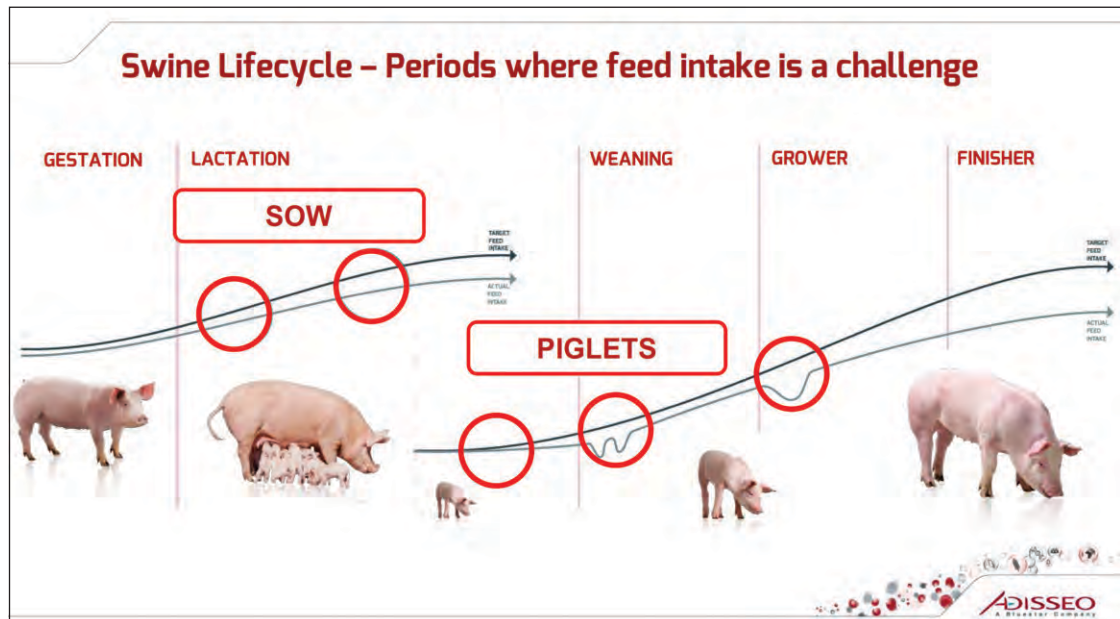
Facilitated by Asia Pacific managing director Eric Paillard, the Advancia Academy seminar was engaging, insightful and productive.



Adisseo hosted an Advancia Academy Protect Your Margins event in Sydney recently.



Digestibility evaluation platform in Adisseo China, presented by Adisseo research and innovation senior manager Cassino Yang and regional scientific and technical manager Bing Guo.



Feed intake enhancement, presented by Adisseo global scientific and technical manager Simon Eskinazi.

Adisseo Advancia Academy Australia 2024 seminar a resounding success

AS part of its Advancia Academy, Adisseo recently facilitated a pork and poultry industry relevant seminar in Sydney on February 22, 2024, directly after the conclusion of APSS 2024.

At Advancia and Advancia Academy events, well-known experts share with end-users the progresses on scientific knowledge on practical issues of the animal production chain.

Advancia Sydney was lauded as a success given the positive feedback by participants.

There was a dynamic convergence of industry expertise, insightful discussions and collaborative learning.

As the first Advancia to launch in the Asia-Pacific region in 2024, the theme was 'Protect Your Margins' and tailored to stay closely aligned with market issues, while steering clear of excessive product-focused presentations.

Participants were able to engage and draw from diverse insights and enriched discussions revolving around net energy and raw material perspectives, feed intake enhancement, data science and artificial intelligence in practice, feed milling operations and optimisation.

Topics and speakers included:

- Data science and artificial intelligence in practice in the livestock sector, presented by Animal Data Analytics chief executive officer Carlos Piñeiro
- Feed intake enhancement, presented by Adisseo global scientific and technical manager Simon Eskinazi
- Feed milling operations and optimisation, presented by Adisseo global solution application manager Marc Perel
- Digestibility evaluation platform in Adisseo China, presented by Adisseo research and innovation senior manager Cassino Yang and regional scientific and technical manager Bing Guo
- Revisiting the energy systems: challenges and opportunities, presented by Adisseo pig and poultry nutritionist Pierre Cozannet.

Carlos Piñeiro

Dr Carlos Piñeiro is a seasoned veterinarian and has been director of Animal Data Analytics SL for 23 years, operating globally.

With a focus on data management in animal production, Dr Piñeiro holds degrees from U Complutense de Madrid and the University of Meiji-Tokyo.

A member of influential industry groups, he has directed 42 research projects, authored 44 publications and presented 181 communications at scientific congresses.

Serving on the board of ANAPORC, Dr Piñeiro is a key contributor to advancements in production, animal health and environmental assessment.

Simon Eskinazi

Simon Eskinazi is a graduate from Harper Adams University in the United Kingdom with over 35 years' experience in livestock agriculture.

He has spent the past 25 years specialising in the research and development of palatability solutions to positively influence the feeding behaviour of domestic livestock with emphasis on swine, ruminant and equine nutrition applications across Europe, Asia and North and South America.

Marc Perel

Marc Perel graduated in 1994 as an engineer in grain industries and has 30 years' experience in feed and premix manufacturing.

He joined Adisseo in 2014 and is currently the global solution application manager.

During his career, he has had the pleasure of working in almost 50 countries and more than 400 factories.

Passionate about feed technology, his key motivating driver is to achieve customer satisfaction through enhancing their knowledge on the application of additives in premixes and feed plants.

Cassino Yang

Dr Cassino (Yuxiang) Yang graduated from Nanjing Agricultural University in 2016, and has a background in

gastrointestinal microbiology and amino acid metabolism in monogastric animal.

He started his career as a nutritionist and farm management consultant in Cargill Premix Nutrition shortly after his graduation.

A couple of years later, Dr Yang joined Adisseo, focusing on technical service for liquid methionine and various product development as a senior scientist.

Bing Guo

Dr Bing Guo holds PhD from Nanjing Agricultural University in partnership with Australia's CSIRO, with both a food science and technology and veterinary medicine background.

He has worked in the feed additives industry for over recent years as a scientist, product manager and technical manager in both China and the Asia-Pacific region.

He is now working actively as a regional scientific and technical manager for Adisseo in the APAC region, with a strong focus on animal nutrition, feed ingredients and gut health solutions for monogastric animals.

Pierre Cozannet

Dr Pierre Cozannet joined Adisseo in 2010 as an animal scientist in pig nutrition, conducting research and development programs focusing on enzyme mode of action and practical applications and solutions.

Dr Cozannet holds a Masters degree in zoototechnical science from the Agrocampus Ouest of Rennes in France.

His research interests include nitrogen and energy metabolism in non-ruminants, competition among great physiological functions (that is nutrition, growth, immunity, reproduction) and global breeding system approach.

Adisseo extends its appreciation to all speakers and colleagues who had a hand in contributing to the success of the event.

The Adisseo team remains dedicated to attentively addressing customers' needs and fostering value creation.

For more information, visit adisseo.com

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One hundred years of World Organisation of Animal Health

IN February, the Australian Government joined in the celebration of the World Organisation of Animal Health's milestone one-hundredth anniversary.

WOAH, formerly known as International des Epizooties, is an international organisation focusing on preserving the health and wellbeing of animals.

To honour 100 years of WOAH, a celebration was hosted by the French Embassy in Canberra.

Australia's chief veterinary officer, and delegate to the World Organisation for Animal Health, Dr Beth Cookson spoke at the celebration event.

"Australia has been

a WOAH member for 99 of its 100 years," Dr Cookson said.

"Our commitment to the organisation is a testament to the essential role which we believe it plays.

"As more nations are sharing greater prosperity through agricultural trade, collaboration to address global animal disease threats is more important than ever.

"WOAH provides vital global leadership in animal health, with member nations working together to enable safe and sustainable trade."

The World Organisation for Animal Health plays a crucial role in securing global trade

through its international standards on animals and animal products.

"In Australia, we are fortunate to enjoy a diverse ecosystem free from many pests and diseases," Dr Cookson said.

"It's important that we protect Australia, especially our agricultural sector, from these threats to the health and welfare of our animals.

"We work hard to keep these diseases out of Australia for the sake of our Australian way of life, a feat we could not achieve without organisations such as WOAH.

"Australia is committed to working collaboratively with WOAH into the future."



Nomad Sydney executive chef Jake Ahrens curated an outstanding menu.

PorkStar shines at Sydney event

THE Australian Pork Limited PorkStar program hosted industry guests recently – including chefs, restaurateurs, consumer media and suppliers – at Nomad Sydney for a feast that celebrated a beautifully curated menu by the talented executive chef Jake Ahrens.

Menu highlights included ham hock hash brown, pig's ear chicharron and pork cheek with watercress and preserved plum.

Pork was highlighted in every dish, including a stunning dessert of Turkish coffee and smoked pork fat caramel bombe Alaska.

The evening was a celebration of all things pork and an inspiration to keep pork at the forefront of menu placement.

A huge thank you to our partners for the evening, Australian Wine List of the Year Awards, Lord Nelson Brewery, Handpicked Wines, First Drop Wines and Eisenstone.

PorkStar sparks carcass conversations

In an effort to continue telling our story and create opportunities to promote interest for all things pork, APL look for engaging ways to spark conversations among supporters of pork.

One key stakeholder group we readily engage and collaborate with is the Australian food media.

With so much diversity and versatility that pork has to offer, it's important for those who support pork in the media understand the world of pork and learn how the industry operates.

Recently, the PorkStar team hosted the team from *Delicious*, one of Australia's favourite food publications, to experience a breakdown of a pork carcass.

Veteran butcher and chef Darren O'Rourke showcased his butchery skills through a com-

plete nose-to-tail breakdown, with rising-star Marcus Papadopoulos of Whole Beast Butchery kindly supplying the carcass.

Over three hours, the demonstration provided educational insights, an overview of pork cuts and how these cuts can be used in fun and innovative ways for recipe creation.

It was an eye-opening experience for our guests, with food media walking away keen to learn more about our industry and supply chain.

Nicole Gleeson
APL Marketing
Coordinator



Australian chief veterinary officers Alison Crook (Queensland), Jo Coombe (NSW), Beth Cookson, French ambassador Pierre-André Imbert, Elise Spark (South Australia) and Graeme Cook (Victoria). Photo: the Embassy of France in Australia

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China imports breeding swine to improve domestic herd genetics. Photo: Aitoff

China swine imports low

THE US Department of Agriculture Agricultural Research Service post in China has revised its forecast up for swine imports in 2024 to 7000 head, but according to its recent Global Agricultural Information Network report, imports will still moderately decline from 2023.

China imports breeding swine to improve domestic herd genetics.

Imported live swine only account for around 0.001 percent of the total swine population.

Most swine producers continue to be under financial pressure, making it difficult to invest in herd improvements.

Additionally, despite the falling sow and swine inventory, current sow levels are above the Peoples Republic of China's official targets.

Industry contacts also believe current sow levels are sufficient.

The main suppliers of live swine to China are the US, Denmark, and France as they have different com-

petitive advantages on litter size, body shape, lean meat rate, growth rate and disease resistance.

According to industry sources, swine from Denmark have the highest number of pigs per litter but lower piglets weaned per sow per year.

Swine from the US generally have larger body sizes, swine from Canada have good litter sizes and swine from France have a good balance of growth rate and disease resistance.

Post revised swine imports up in 2023 to 8000 head, compared to 5000 head in 2022, according to data from Trade Data Monitor.

The surge in swine imports in 2020 and 2021 were from large swine producers rebuilding their herds following the outbreak of African swine fever.

Imports dropped significantly in 2022 once herds returned to pre-ASF levels but returned to 2018 levels in 2023 as larger producers – the main importers of live swine – gained more market share and pushed out smaller producers. 🐷

APL submission regarding pre-slaughter stunning

AS part of its submission to the Legislative Council Economy and Infrastructure Committee hearings for the inquiry into pig welfare in Victoria, Australian Pork Limited included the below edited excerpt.

This extract was in response to Terms of Reference Two: The ability of the most common methods used to stun pigs before slaughter (including electrical stunning and the use of carbon dioxide gas) in Victorian abattoirs to minimise pain, suffering and distress and prevent injury, and available alternatives.

The submission in its entirety can be viewed at parliament.vic.gov.au/494c33/contentassets/7b3e3034f6ab4325accf6c26ea69f02d/543-australian-pork-limited-apl_redacted.pdf

Note – the pork industry uses the term livestock processing facilities or abattoir, as referenced in regulations and standards.

Pre-slaughter stunning is recognised as a humane inclusion in the process of killing an animal for the purpose of producing food.

Function of stunning
Stunning aims to intentionally cause unconsciousness and insensibility without pain and suffering.

Animals must remain unconscious until death occurs through loss of blood, if not killed by the

stunning method itself.

The impact of a stunning system should not be examined in isolation but include the differences of the components of the slaughter process that affect animal welfare.

It is a legal requirement in many countries to stun animals prior to slaughter and that they remain unconscious until death.

While stunning renders an animal unconscious, it may or may not kill an animal outright, depending on the method of stunning used.

Some methods may only induce unconsciousness for a short time before the animal fully recovers, while others may result in a long duration of unconsciousness or even death in some or all animals.

Regardless of the stunning method, stunning is followed by sticking (bleeding) to ensure death prior to the slaughter process and to ensure blood loss to maximise meat quality, which must be residual free so it is suitable for human consumption.

While animal welfare is of utmost importance, the safety of the human operators, the economics and the environmental impacts also need to be considered.

Current practice and animal handling

Positive handling experience has also been found to provide ben-

efits in terms of ease of handling and meat quality.

Consequently, stockpeople behaviours impact both the immediate behaviour of the animal, as well as the subsequent behavioural responses of the animal to humans.

Thus, understanding the animal's behavioural characteristics and sensory and cognitive capabilities is important for effective handling, as well as ensuring high animal welfare and productivity in all stages of livestock production.

Optimisation of lairage and slaughter conditions (particularly facility layout, ambient control and handling) is important in order to allow pigs to recover from the stress of handling and transport and to ensure optimal and uniform carcass and meat quality.

The Australian pork industry continues to invest in research and development to enhance the welfare and care of our pigs.

This includes the design of modern infrastructures and low-stress animal handling systems.

Our research has driven continuous improvement and significant investment across the industry, with 85 percent of Australia's commercial pig production being processed in export-certified abattoirs that have adopted world-leading infrastructures, enhanced by the application of leading animal handling techniques and supervised by independently employed on-site veterinarians.

The industry will continue to use methods that are backed by peer-reviewed Australian and global scientific research into animal welfare, ensuring the humane outcomes for our animals during processing.

APL is committed to supporting our industry by prioritising continuous improvement in animal welfare of pigs under our care.

ProHand was developed in recognition of the vital role stockpeople have in the overall productivity, welfare and health of the pigs in their care and control.

The free online training program specifically targets those key attitudes and behaviours of livestock handlers that have been shown to have a direct impact on pigs.

ProHand was developed by the Animal Welfare Science Centre at the University of Melbourne with funding from APL and the Australian Meat

Processor Corporation.

ProHand is a world-leading proven training program designed and tested on stockpeople at commercial farms around the world.

It builds on extensive scientific research regarding factors that affect the productivity and welfare of farm animals.

Its development involved leading animal welfare experts, including Professor Paul Hemsworth and Jeremy Skuse and psychologist Professor Grahame Coleman.

Dr Temple Grandin was also integral in the endorsement of ProHand.

In Australia, it is offered as 'ProHand Pigs' for on-farm application and 'ProHand Abattoir' for abattoir application.

Planning for the development of ProHand for the transporter is also underway.

ProHand builds on extensive scientific research on factors that affect the productivity and welfare of farm animals.

There is a strong body of scientific research that demonstrates the effects of human interactions and farm animal stress responses.

Important foundation research by Hemsworth et al demonstrated that training involving cognitive-behavioural intervention (via training of stockpeople) leads to reduced fear in pigs and improved welfare and productivity.

ProHand improves the interaction between livestock handlers and pigs by minimising handling stress and improving animal welfare, meat quality, staff motivation, performance and job satisfaction.

APL continues to work with our industry to support ongoing improvements and training in abattoirs to support improved pig welfare.

We have been contacting all abattoirs to extend ProHand Abattoir training through the supply chain.

Every processor is committed to doing this. **Currently used stunning methods in Australia**

In Australia, the Model Code of Practice for the Welfare of Animals – Livestock at Slaughtering Establishments 2001 deems it acceptable for pigs to be stunned using controlled atmosphere carbon dioxide and two other physical methods – mechanical (for example, captive bolt) and electrical.

However, the most used stunning methods for pigs in commercial abattoirs in Australia are CO2 and electrical stunning.

Controlled atmosphere CO2 stunning

The use of CO2 is considered a humane and acceptable method of stunning pigs in Australia, the US, the European Union and by the World Organisation for Animal Health.

Carbon dioxide stunning for pigs is the most used stunning method across the EU, the US, Asia and Canada, with rigorous scientific research underpinning all methods used.

Pre-stunning stress, the effectiveness of stunning and the effect of the stunning method per se needs to be considered when assessing the effect of stunning on animal welfare and meat quality.

In CO2 gas stunning, major animal benefits include:

- Pigs can be handled and stunned in small groups, which reduces human-animal contact

- There is also no need to apply restraint – previous research has shown this greatly reduces separation anxiety and distress for pigs

- Reliably produces unconsciousness (100 percent) in a concentration-dependent manner and most pigs do not recover from stunning, so the stun-to-stick interval is not critical.

In addition to animal welfare considerations, another reason CO2 has become the preferred method is that it reduces meat damage, such as petechial haemorrhage and blood spots in the pork.

Carbon dioxide stunning generally results in better meat quality as compared to electrical stunning.

Reduced pre-slaughter stress is likely to be a major factor.

Currently, no alternative method is available that offers the proven advantages of CO2.

This includes electrical stunning and the use of other gas mixtures in combination with CO2.

Electrical stunning
Electrical stunning is mainly used in small and medium-sized abattoirs worldwide.

In Australia, the Model Code of Practice recommends head-to-back electrical stunning of pigs, with a minimum of 400V, 1.3 amps for 2 seconds.

Captive bolt devices
Captive bolt devices are mostly used for stunning before slaughter of cattle but may be used in very small abattoirs as the main stunning method for pigs.

Further inquiry submissions can be viewed at parliament.vic.gov.au/get-involved/inquiries/inquiry-into-pig-welfare-in-victoria/submissions

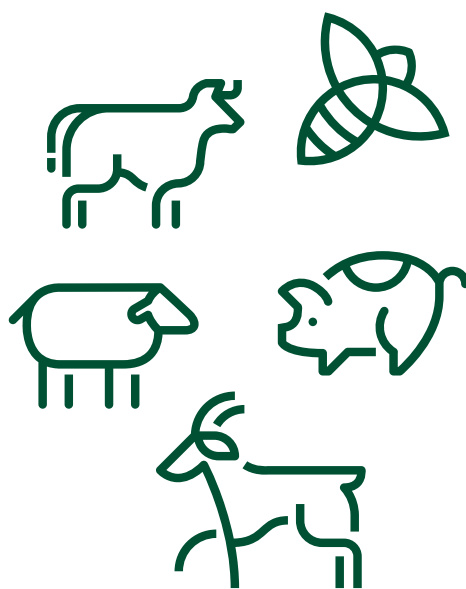
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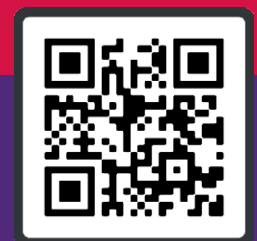
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1. Joachim et al., Parasites & Vectors, 2018.
2. Ceva internal data. 3. Sperling et al. Veterinary Record, 2018.

Why humans kill animals - Part 3

■ Delving into and discussing the final five reasons

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 final five of those reasons are discussed here.

6. Threatened species conservation

Killing one animal to save another more threatened or less abundant animal is largely an altruistic act, though humans might derive some aesthetic benefit from retaining only native species in a given location (see reason 5 in last month's issue).

Killing animals (either native or non-native) to protect threatened species is also common across continents.

Non-native examples include killing feral cats, brushtail possums or stoats to protect small mammals and ground-nesting birds in Australia and New Zealand, killing grey squirrels to protect red squirrels in Europe, killing camels to protect the water sources used by native animals in Australia, or killing rodents to protect seabirds or endangered endemic rodents on oceanic islands.

Native examples include killing dingoes to protect rufous hare-wallabies in Australia, or killing barred owls to protect spotted owls in North America.

Many examples of this form of killing involve killing predators to al-

leviate their impacts on prey.

Additional examples include killing common herbivores to alleviate competition with threatened herbivores or killing herbivores to reduce their impacts on threatened plants.

Population control (that is, killing) of various carnivore and herbivore species is also required in smaller protected areas to ensure that over-utilisation of resources (either plants or animals) by one or more species does not cause the death and decline of others.

This type of animal killing may be a necessary temporary solution when abundant vertebrates pose an immediate threat to the survival of a rare species, given that killing relatively few animals in the short term can reduce the overall numbers of animals killed in the long term.

However, the repeated killing of common animals to save endangered ones may produce several adverse outcomes, including the high cost of population control, ecosystem changes that favour increases of other harmful species, or increases of diseases harmful to the endangered species.

Habitat rehabilitation and restoration programs may be better solutions to problems caused by abundant native animal species because community and ecosystem degradation are the ultimate causal factors responsible for some species becoming rare and others becoming abundant.

These solutions are long-term, biologically sound and involve little direct human intervention into ecosystem processes.

Thus, humans do not need to kill animals to save other animals, but abstaining would knowingly magnify the number of individual animals killed and condemn entire species to extinction in some cases.

7. Recreation, sport, entertainment

Recreational hunting and fishing, or killing

animals for sport or entertainment, is a particularly contentious form of animal killing by humans.

This practice is also distinguished from other types of animal killing by its motivation.

For example, recreational hunting and fishing do not always result in consuming the animal, but when it does, this behaviour might be better classified as wild harvest (see reason 1).

Here, we define recreational killing as being purely for entertainment, sport or pleasure, including collecting trophies, achieving personal goals (for example, catching a large fish), facilitating gambling or keeping pet animals.

This type of animal killing by humans evolved out of necessity to acquire food and protect life or property (see reasons 1-4), and the behaviour further developed as a rite of passage, or a demonstration of personal skill or work ethic also associated with mate acquisition.

However, continued cultural evolution in many human societies has meant that recreational hunting is now undertaken as a largely symbolic gesture or pleasurable use of time.

Alternatively, recreational hunting might be interpreted as a righteously defiant – that is, defiant of moral arguments that discourage recreational hunting – ritual resembling animal sacrifice in the religious sphere (see also reason 9).

There are countless examples of recreational killing by humans – virtually any animal with horns, large teeth or tusks, attractive fur or feathers has been or is still hunted for sport.

High-profile examples include red fox hunting in England and lion hunting in southern Africa.

Lesser-known examples include live-baiting with rabbits to train greyhound dogs.

Many wild animals are also killed to feed the billions of pet animals (that is, cats and

dogs) kept by humans for pleasure.

For example, 13.5 percent of the total 39 million tonnes of wild-caught fish is used to support the pet food industry.

Cock, dog and bull fighting are other forms of recreational animal killing and, in the case of bull fighting, is also a legally protected cultural heritage activity (see reason 9).

Death of the animal is the intended goal or at least an unavoidable outcome of recreational killing in many cases (as an example, to acquire a trophy).

Yet some forms of such recreation do not require killing, including the catch-and-release practices common to anglers or the type of no-kill trophy hunting proposed by Cove.

These practices may cause some harm to animals, which might inadvertently die on occasion, but they do not necessarily demand animal killing.

Such non-consumptive activities still require skills used in recreational hunting, such as wildlife photography, bird watching or snow tracking, and might therefore be as personally rewarding as killing the animal in some cases.

Many forms of recreational killing may be avoidable.

However, without alternative revenue streams, cessation of these practices will indirectly result in the death of many animals, given that wildlife conservation efforts in many parts of the world are directly funded through recreational killing activities.

Recreational hunting may also contribute to wildlife conservation through the suppression of overabundant game species.

8. Mercy or compassion

Humans frequently kill animals out of mercy or for compassionate reasons.

For example, humans will often have a beloved pet dog or cat killed by a

◀ continued P17



Alltech's partnership with the Women in Food & Agriculture mentorship program is an investment in the lives of women and the future of agriculture.

Alltech supports mentoring women in food and agriculture in 2024 WFA program

ALLTECH is proud to continue to partner with the Women in Food & Agriculture mentorship program.

Applications are open for new mentors of any gender and for female mentees from across the global food and agriculture sector.

Now in its fourth year, the free-to-join program is dedicated to supporting women across the global food and agriculture sector by providing invaluable mentorship opportunities and has proven to be a beacon of support for women seeking guidance, advice and networking opportunities in their careers.

Findings from the WFA survey and ongoing feedback from all levels of the food and agriculture sector consistently suggest that a hurdle to greater success for women in the global agrifood industry is a lack of mentorship opportunities.

To tackle this issue, WFA launched its mentorship program.

WFA matches applicants based on their preferences, which can include gender of mentor, areas of expertise, language and industry sector and offers opportunities for women in food and agriculture to develop meaningful industry connections.

Since the inception of the program, WFA has received an overwhelming response, with 3051 applications from individuals seeking mentorship and 1691 industry professionals offering their mentorship services.

This remarkable level

of engagement underscores the program's significance in addressing the need for mentorship opportunities within the food and agriculture sector.

To date, the program has facilitated over 562 pairings, connecting mentees with experienced mentors who provide invaluable insights and support.

These pairings have spanned various roles and sectors within the industry, ranging from chief executive officers of agribusinesses to small-scale farmers, academics and agtech professionals.

Alltech president and CEO Dr Mark Lyons said, "Our partnership with the Women in Food & Agriculture mentorship program is an investment not only in the lives of women but in the future of agriculture, as the industry most integral to the nourishment and vitality of our planet."

WFA global chair Elisabeth Mork-Eidem expressed her enthusiasm for the program's continued success.

"We are delighted to see the overwhelming response to the WFA mentorship program, which underscores the importance of mentorship in empowering women in the food and agriculture industry," Ms Mork-Eidem said.

"With Alltech's ongoing support, we are confident that the program will continue to make a positive impact, fostering diversity and inclusion across the sector."

Alltech chief culture officer Orla McAleer reiterated the compa-

ny's commitment to the program.

"I am excited to reaffirm our support and sponsorship of the WFA mentorship program in 2024," Ms McAleer said.

"We believe in championing the advancement of women in this vital sector and helping to cultivate a more vibrant, equitable and diverse agricultural community."

"As a mentor and advisor to the program, I understand the value and impact the mentorship connection brings to everyone involved."

Alltech believes that inclusion cultivates creativity, drives innovation and is essential to the company's purpose of working together for a planet of plenty.

In 2019, Alltech selected gender equality as one of the nine United Nations sustainable development goals to which the company committed to advancing.

Supported by Alltech, applications are now open for the 2024 WFA mentorship program to individuals seeking mentorship, as well as industry professionals interested in offering their mentorship services.

The program welcomes applications from across the global food and agriculture sector, and applicants will be personally matched based on their preferences and professional objectives.

For more information and to apply to be a mentor or mentee, visit wfa-initiative.com/mentorship-program/

Alltech



WFA global chair Elisabeth Mork-Eidem expressed her enthusiasm for the program's continued success.



The rufous hare-wallaby was pushed to the brink of extinction. Photo: Australian Wildlife Conservancy



Recreational hunting and fishing, or killing animals for sport or entertainment, is distinguished from other types of animal killing by its motivation. Photo: Aaron James



Humans frequently kill animals out of mercy or for compassionate reasons. Photo: Alexandre Debieve

Why humans kill animals - Part 3

from P16

veterinarian (that is, euthanised) to avoid continued suffering when the pet becomes old or ill.

Various wildlife species injured in predation attempts, road collisions or other accidents are also euthanised to prevent the inevitable suffering and likely death that will occur if the animal is left, in the vain hope it will later recover.

Euthanasia may also be appropriate for wildlife casualties that are a danger to other animals or humans.

In some circumstances involving a flock, herd or group problem (that is, a disease outbreak), euthanasia of a small number of ill animals may also be required to provide a diagnosis, allowing appropriate treatment of the remainder of the flock, herd or group.

Healthy animals in zoos or fenced reserves

might also be killed because they are surplus to requirements (for example, genetically similar individuals might lead to inbreeding and compromise breeding programs), or to prevent them from being killed by other animals or ecological processes, given a lack of space to accommodate them (see also reason 6).

A variety of other, more nuanced reasons might further necessitate mercy killing, especially in veterinary care settings.

Unlike wild harvest (reason 1), agriculture (reason 3) or urbanisation (reason 4), where killing is unavoidable, compassionate killing or mercy killing is easily avoidable by 'doing nothing'.

Debililitated animals might even be kept intentionally alive with palliative care to facilitate the generation of induced pluripotent stem cells,

which are useful for developing therapeutic applications for captive animals that suffer from degenerative diseases or for preserving the genomes of individuals for later use in genetic rescue efforts (see also reason 6).

However, suffering animals with a poor prognosis for survival are typically euthanised rather than left to die more slowly because inaction causes preventable harm to animals, and failure to kill the animal can be a punishable breach of animal welfare law in some countries.

This interplay between animal ethics and animal welfare means that in cases of mercy killing, humans must choose to shorten suffering and kill the animal or avoid killing the animal and prolong suffering.

The moral acceptability of mercy or compassionate killing

is grounded in the understanding that killing the animal results in less harm than allowing the animal to live – a 'good death' is seen as a more desirable alternative to a 'bad life' when a 'good life' is not possible.

9. Cultural and religious practice

Buddhism, Islam, Hinduism, Judaism, and Christianity – indeed almost all the world's major religions and cultures permit the killing of various animals for the purpose of eating meat (reasons 1 and 3).

Cultural practices around the world also sanction animal killing for non-consumptive purposes, including religious animal sacrifices to a deity or god.

Animals sacrificed to a deity may or may not be subsequently eaten.

Though 'life is dear to all' in Buddhism, where the precept 'one should

continued P18

Zoetis expands investment

ZOETIS recently announced the purchase of an 8.5ha manufacturing site in Melbourne, to significantly expand its current operations at the site and increase future capabilities to develop and manufacture vaccines.

Currently 130 million doses of vaccines for companion animals and livestock are produced in Australia each year.

A healthy livestock sector is critical to the health of the Australian economy – and contributes to the world's food security – with the sector responsible for \$67 billion in annual turnover and employing 428,000 people.

Zoetis plays a critical role in keeping Australia's livestock healthy by supplying farmers with more than 100 million doses per year of vaccines.

Zoetis chief executive officer Kristin Peck said, "We are excited to increase our investment in Australia and provide greater support to Australia's farmers and veterinarians who rely on our vaccines, medicines and diagnostic tools to keep their animals healthy and productive."

Ms Peck joined ministers from the Victorian Government to announce the purchase from the government.

"Australia's livestock sector is highly regarded around the world and Zoetis is proud to help the region's livestock farmers be part of a climate so-

lution, as they increase productivity, health and welfare outcomes that can have a positive impact on the planet," Ms Peck said.

Zoetis senior vice president and Australia/New Zealand lead Lance Williams said, "Recent years have shown us the importance of local manufacturing and our expanded footprint in Melbourne signals our commitment to Australian farmers and veterinarians."

"We're pleased to play an important role in supporting a healthy livestock sector in Australia, and helping Australian producers remain productive and profitable," Mr Williams said.

The site in the Melbourne suburb of Parkville has a rich history of supporting this nation's agriculture industry, going back to the development of a vaccine for black disease in sheep in the 1930s.

Zoetis has been operating at the site since

2004 under a long-term lease, and today the site produces the Ultravac, Pestigard and Vibrovax cattle vaccines, the Glanvac, GlanEry and Scabigard sheep vaccines and Equivac horse vaccines, along with vaccines for dogs, cats and pigs.

The Parkville purchase adds to Zoetis' acquisition of Jurox in the NSW Hunter Valley in 2022, which provided Zoetis with a second Australian manufacturing site from which to produce pharmaceutical products for a variety of species.

With this investment, Zoetis' footprint at the Parkville site will grow substantially as it expands operations over the years ahead.

Zoetis sold \$484 million of products in Australia in 2023, an increase of 17 percent over the previous year.

Zoetis employs 426 people in Australia across its commercial, manufacturing research and development teams.



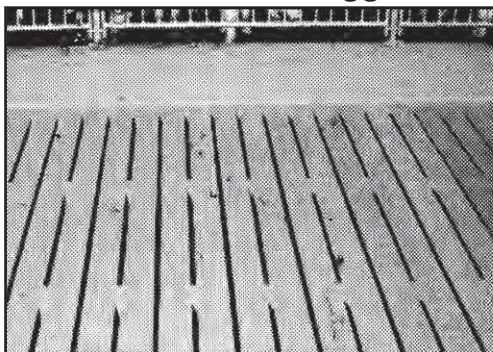
Zoetis doubles its manufacturing footprint in Australia to boost future capabilities for healthy livestock. CEO Kristin Peck with Natalie Hutchins and Colin Brooks.

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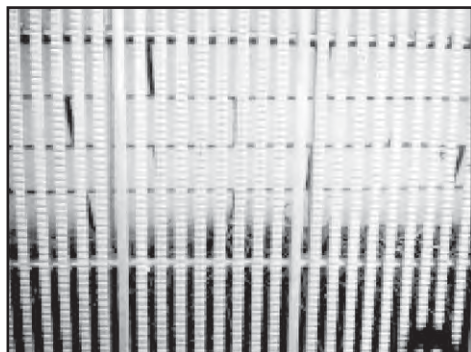
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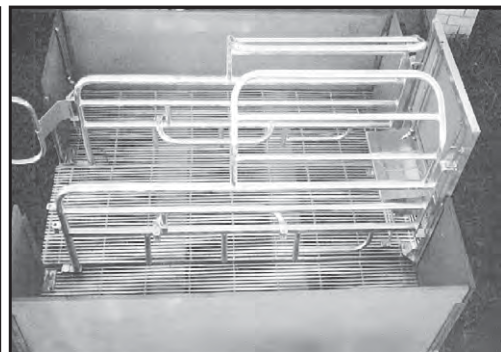
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Easy farm clean up, more capability

AUSTRALIA'S leading high-pressure water blaster manufacturer, Aussie Pumps, has acquired a new facility.

This will allow for increased production of its range of cold and hot-water pressure cleaners, ideal for keeping farm equipment clean.

Conceived, designed and built in Australia, the machines offer features that are significantly upgraded compared to imports from Europe or developing countries.

The range, starting with the 3000psi Aussie AB30 'Pocket Rocket', offers models that go all the way to 7000psi (500 bar).

Available in both Honda petrol or Yanmar diesel-drive engine options, the machines are robust, mobile and easy to use.

The heavy-duty range of gearbox-drive pressure cleaners are designed for continuous use.

Called the Aussie Scud, the machines are a breakthrough in design.

Testimonials from current users include,

"Works well and is used every day for weeks at a time!"

They offer a unique ergonomic stainless-steel frame with four 13" steel wheel and big flat-free tyres.

This means the machines are easy to move around and, with a performance range between 3000psi and 5000psi, there are models available to suit virtually every application.

The heart of the system is a 'Big Bert' Bertolini pump, gearbox drive running at slow speed (1450rpm).

They are designed for a long and trouble-free life.

A wide range of attachments make clean up faster and more efficient.

Extension wands for hard-to-reach areas, flat surface cleaners and even turbo lances all help to cut cleaning times.

The latest introduction to the Scud range is a high-flow version, suitable for machinery washdown or even shed washdown.

The best news is that

Aussie Pumps has increased production volume and moved into a larger facility.

But this has not deterred from the fact that Aussie Pumps have always been able to keep prices at highly competitive levels.

Getting value for money

Because Aussie Pumps is a small Australian company with only 50 employees, it doesn't carry the huge overheads of the big corporations.

That independence means the business can pour more money into product development.

Its inspiration being feedback from a wide range of customers who use the products Aussie Pumps make.

Aussie's preoccupation is self-priming centrifugal pumps and high-pressure water blasters.

Which may sound simple but the range that has been developed over the past 30 years is the most complete and versatile in the industry.

Aussie Pump's chief engineer John Hales said, "When doing our design work, we al-

ways talk to users to get feedback for what they think the product should be like."

"The engineering and design team always want to know what the user thinks because after all, they have more experience on the job than we ever will," Mr Hales said.

The result is products that represent real advantages over both local and imported competitors, that are safer and more economical to use and that offer significantly better value for money.

Local partners for local support

Aussie Pumps realised that having a great product line means having distributors who carry the stock, know the product and understand how to apply it.

Aussie Pumps dealers have confidence in the product line because they know their priority is to deliver top outcomes to the people who use the equipment.

For further information, contact Aussie Pumps today on 02 8865 3500 or aussiepumps.com.au



Not all cultural killing of animals is for religious reasons or involves sacrifice. Photo: Ashwini Chaudhary

Why humans kill animals - Part 3

from P17

not kill nor cause others to kill' is sometimes applied through strict vegetarianism, meat-eating is still commonplace in most Buddhist societies.

Other branches of Buddhism permit what might be described as 'scavenging' when the meat is available or offered rather than intentionally killed.

The sacrifice of sheep, goats, cows, camels and sometimes yaks and banteng is commonly practiced in Islamic communities around the world in association with the celebration of the Eid al-Adha (that is, 'feast of sacrifice', 'great feast', 'sacrifice feast', or 'goat feast') during the Hajj or pilgrimage.

In Indonesia alone, approximately 800,000 goats were sacrificed during the festival in 2014.

About 2.5 million sheep, cows and goats are sacrificed during this festival in Turkey each year, and about 10 million in Pakistan.

Muslims also perform animal sacrifices on other religious occasions.

Animal sacrifice is also widespread in polytheistic Hindu cultures, where various traditions sacrifice animals to a variety of deities, especially in India and Nepal, where mainly goats, buffaloes and chickens are killed.

Pacific Island cultures also sacrifice animals.

For example, chickens

or goats are sacrificed to wanamo (a half-man half-dog spirit that prolepted through strict vegetarianism, meat-eating is still commonplace in most Buddhist societies.

Animal sacrifice is also common in many African cultures, such as the Isele or Yoruba religion found in West Africa and the Afro-American religions of the Caribbean.

Animal sacrifices were practiced extensively in ancient Jewish, Christian and other monotheistic cultures of the Near East and beyond in Europe and North Africa.

For ancient Jews and Christians, the practice was originally designed to teach about the future sacrifice of the Messiah or Jesus Christ, which then understandably ceased following Jesus' crucifixion circa 33 CE, when the sacrament of communion (that is, broken bread and wine) was instead instituted to remember Jesus' sacrifice.

A small number of contemporary Christian denominations in Europe, northern Africa and Mexico still practice a restricted form of animal sacrifice today, killing sheep, chickens or pigeons.

With a history deeply rooted in Judeo-Christian values, most contemporary western cultures do not exhibit animal sacrifice traditions.

Nevertheless, landmark cases brought to the US Supreme Court may permit the practice of ritual animal killing in the US under their constitutional provision of religious freedom – a freedom not supported in Europe.

These examples illustrate the widespread use of animal sacrifice in ancient and modern cultures in all areas of the world and the diverse expression of the practice across different communities.

However, animals are also ritually killed for reasons other than worshipping a deity.

For many, the animal sacrifice is itself constitutive of interspecies kin relations, and the spectacular act of violence at the heart of the sacrifice (as an example, the beheading of the sacrificial animal) is crucial to the constitution of kin solidarity between the human sacrificer and animal victim.

Not all cultural killing of animals is for religious reasons or involves sacrifice.

Feasts, where special foods such as 'the fatted calf' or unusual quantities of food are served, can be for socio-political purposes without sacrifice but accompanied by rituals associated with the killing of the animals to serve at the feast.

Exotic cooked flesh can be used to welcome or impress guests, establish or maintain prestige, power or face, or accom-

continued P19



Aussie Pumps has increased production of its unique stainless-steel Scud pressure cleaner range.

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Why humans kill animals - Part 3

from P18
pany initiations into a society.

Gatherings of people to benefit from super-abundances of food, such as migratory or seasonally abundant animals (for example fish migrations, see also reason 1), are often culturally linked to phenological signals and associated ceremonies.

As examples, ceremonies of food availability, harvesting and use prescriptions were, and are, ritually enacted and celebrated by First Nations peoples in Canada and Australia, and bat harvesting festivals are annually celebrated in northeast India.

It might be argued that humans do not need to kill animals for purely cultural or religious reasons, and there are indeed some noteworthy examples of rapid cultural change to avoid animal killing.

However, we suspect that many people will still feel so deeply about the issue that it could be described as a need, and denigration or suppression of those religious and cultural needs might be considered bigotry, epistemicide or cultural imperialism.

Expression of the very idea that proper or more developed religions are superior to primitive barbaric religions is typically divisive, racist and deeply rooted in colonialism.

Though the practice of animal sacrifice will remain subject to criticism by some people, it is likely to continue except where it is prohibited by law.

Thus, many cultural and religious practices will continue to require the killing of animals and cannot be easily substituted with practices that do not require animal killing.

10. Research, education and testing

Killing animals for research, education and testing purposes is treated separately here because of its unique reasoning.

However, it might also be thought of as an extension to, or component of, many of the other preceding reasons for animal killing by humans (reasons 1-9), given that animal research is often conducted to support our understanding and implementation of those other reasons.

Animals are used in scientific and medical research and education to understand a whole range of questions relating to how human and animal bodies work, what causes diseases in humans and animals, or attempts to develop therapeutic and cosmetic treatments that are safe and effective.

Many, if not most, of the remarkable innovations in our medical understanding and treatment of contemporary human maladies have been at least partly derived from research using animals.

The use of animals for research, education and testing is typically highly regulated to ensure such use is justified on ethical and welfare grounds.

Millions of animals are used each year in research and education (for example dissection, vivisection and veterinary training).

However, adherence to Russell and Burch's 'Three Rs' principle – replacement, reduction and refinement – is now a requirement of most, if not all, legislated and self-regulated national surveillance systems to ensure this use of animals is justified.

The replacement of animals in research has occurred mainly through improvements in techniques, which enable scientists to look for

mechanisms of action at the cellular and molecular levels rather than using a 'whole animal' approach.

Most national systems of animal research oversight also require reductions in the use of animals where possible, directing that animals should only be used when no other method is available to meet the scientific aims of the study.

The refinement of techniques has resulted in less harm and fewer animal deaths in experimental procedures.

Refinement not only improves the lives of research animals but it can also improve the quality of the science.

One obvious way to improve animal welfare while using animals for research or education purposes is to create an environment that meets the animals' specific needs.

To this end, Mellor and Reid developed the 'Five Domains Model' – originally based on the United Kingdom Farm

Animal Welfare Council's 'Five Freedoms' – to assist in identifying welfare impacts under the following domains: nutrition, environment, health, behaviour and mental state.

While the implementation of Russell and Burch's 'Three Rs' principle and Mellor and Reid's 'Five Domains Model' have contributed enormously to the responsible use of animals in scientific research, the use and killing of animals for research and education cannot be easily eliminated outright.

This is partly because animal experimentation is often intended to identify ways to reduce harm to animals.

For example, the effective development of mammal trapping devices used by researchers and trappers involves the implementation of step-wise protocols to minimise pain and suffering and ensures a thorough assessment of traps with a minimum number of animals.

continued P20



Animals are used in scientific and medical research and education to understand a whole range of questions relating to how human and animal bodies work. Photo: Kenneth Rodrigues



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. Photo: Michelle Hutchinson Photography



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Why humans kill animals - Part 3

from P19

Without such state-of-the-art research protocols and ongoing refinement of techniques, traps used in the field may cause otherwise avoidable pain, suffering and death to millions of animals.

Humans do not need to kill animals for research and education purposes, though refraining from this endeavour will undermine our ability to improve animal welfare and minimise animal killing in the future.

For example, the animal welfare impacts of agricultural killing practices (reason 3) may not improve if we cease researching ways to reduce harm to killed animals, or the harms associated with threatened species conservation efforts (reason 6) may not improve if we cease researching ways to increase reintroduction success.

In the absence of a universal ethic for animal experimentation, concerned scientists and non-scientists alike have plotted different courses of action, while recognising that animal researchers have a role to play as moral stewards of their research animal subjects.

Many medical schools have eliminated their live-animal labs or have reduced the number of healthy animals used for surgical practice and experimental procedures.

Alternatives to the use of live or dead ani-

mals, such as interactive three-dimensional computer models, video footage and life-size plastic models, can be as effective as traditional methods in some cases.

In contemporary contexts, the scientific community and the public need to integrate critical thinking with the scientific method to continually identify necessary and unnecessary animal-based studies, which is presently achieved and managed through various national codes of practice.

Animal researchers and educators must also ensure that published research involving animals meets the highest standards for the use and treatment of animals.

Conclusions

Killing animals occurs in multiple ways for multiple reasons and, though some forms of killing are not essential for human existence (for example, recreational hunting and mercy killing), the overall necessity of animal killing is an unavoidable ecological reality.

Animal killing by humans is also a behaviour consistent with our predatory and competitive ecological roles within the global food web.

We invite others to build on the discussion we have initiated here, and encourage respectful comment and further discussion.

Ben Allen
University of
Southern
Queensland



Australia's pork production to increase by 2 percent in 2024.



Australia exports less than 10 percent of the pork it produces and imports far more than it exports.

Australian pork production to increase in 2024

Of pork produced nationally, Australia exports less than 10 percent

THE US Department of Agriculture Foreign Agricultural Service in Canberra forecasts Australia's pork production in 2024 will increase by 2 percent to 480,000mt (common weakness enumeration), from the upward revised 2023 estimate of 470,000mt CWE, according to a recent USDA Global Agricultural Information Network report.

The rapid growth in beef and lamb prices, during their short supply while these sectors were rebuilding their herd and flock numbers, has spawned an increase in consumers seeking lower cost meat protein alternatives and has encouraged growth in pork production in 2023.

The strong growth in pork production in the first half of 2023 was expected to flow into early 2024.

However, only a small overall growth in pork production was forecast for 2024, as a result of an expectation that lower cattle and sheep prices would filter through to retail meat prices in the

back half of 2023 and into 2024.

This was anticipated to trigger the onset of adjustment in pork production.

Australia exports less than 10 percent of the pork it produces and it imports far more than it exports.

Australian pork production is strongly influenced by pork import prices, as well as competition from other major meat protein sources.

The main competing meat protein sources for pork are poultry, beef and lamb.

From 2019, at the tail end of a multi-year drought when supply of cattle and lambs for processing began to dwindle and the three subsequent years to 2022 when supply was further reduced while cattle and lamb producers were rebuilding the national herd and flock numbers, the price of beef and lamb escalated.

During the same period, though the price of pork increased, it was to a far lesser degree than for beef and lamb, while the price of poultry only

very moderately increased.

With this price dynamic, the consumption of beef and lamb fell – note that Australia produces far more beef and lamb than it consumes, so the available supply to the domestic market is not a constraint – and was substituted by increased consumption of pork and poultry.

This shift in price dynamic over the past four years has spurred the growth in pork production in Australia.

However, the decline of over 40 percent in cattle and lamb prices since the end of 2022 – associated with nearing the completion of the herd and flock rebuild and an increased supply of cattle and sheep for processing – only started to filter through to retail prices in the second quarter of 2023, with the beef price index marginally lower and the lamb price index stable.

It was anticipated that there would be a significant decline in the retail price of beef and lamb in the second half of 2023 and into 2024.

Such price adjustments may lure some consumers back towards beef and lamb and away from pork and poultry.

With Australia's pork producers being highly dependent on domestic consumption, this may trigger a shift towards moderating pork production.

However, due to the lag phase from joining sows, gestation period and raising piglets to market weight, FAS Canberra anticipated the growth in pork production from the first half of 2023 would continue into the second half and into early 2024 before moderating.

The FAS Canberra

pork production estimate for 2023 was revised upward by 11 percent to 470,000mt CWE from the official USDA estimate of 425,000mt CWE.

Pork production for the first half of 2023 was at 234,025mt CWE, 8 percent higher than in the first half of 2022.

Though past trends typically indicate production evenly split between the first and second six months of the year, there was an anticipation that production would be a little higher in the second half of 2023, partly driven by the weaker than usual imports in the first half of the year.



With Australia's pork producers being highly dependent on domestic consumption, this may trigger a shift towards moderating pork production.



Livestock fed FutureFeed produced much less methane.



There are several asparagopsis seaweed growers in Australia.

FutureFeed reduces greenhouse gas emissions

FEEDING livestock a seaweed supplement called FutureFeed could simultaneously help to secure global food security and fight climate change by reducing powerful greenhouse gas emissions.

A hungry warming world

Around the world, an estimated 1.3 billion people rely on livestock such as cattle and sheep for their livelihoods.

There is a significant need to increase the productivity of livestock production to help lift people out of economic and food poverty.

Livestock unfortunately bring with them a gassy problem.

Methane, primarily from burps, is a greenhouse gas 28 times more powerful than carbon dioxide.

About 15 percent of the world's entire total of greenhouse gas emissions come from livestock production, and in Australia the contribution of methane emissions from ruminant livestock is approaching

10 percent of total greenhouse emissions.

This double threat of a growing population and rising greenhouse gas emissions risks destabilising communities and requires an urgent response that can be implemented rapidly and inexpensively.

A sea-based land solution

Commonwealth Scientific and Industrial Research Organisation scientists have collaborated with Meat and Livestock Australia and James Cook University to develop a cost-effective seaweed feed ingredient called FutureFeed, which uses a type of seaweed native to Australia that significantly reduces livestock methane emissions and has the potential to increase livestock productivity.

When only a handful of the asparagopsis seaweed is fed to cattle, it not only drastically reduces the greenhouse gas contribution from agriculture but there is also a strong indication it increases livestock productivity.

The asparagopsis species of seaweed produces a bioactive compound called bromoform, which prevents the formation of methane by inhibiting a specific enzyme in the gut during the digestion of feed.

In August 2020, CSIRO established the FutureFeed company to take the livestock feed to market with investment from AGP - Sustainable Real Assets and Sparklabs Cultiv8 joint venture, GrainCorp, Harvest Road, Woolworths Group and CSIRO.

FutureFeed Pty Ltd will develop a value chain from seaweed cultivation and production through to processing and feed manufacture to supply livestock producers in Australia and internationally.

The company will license seaweed growers in Australia and around the world to secure the ongoing delivery of high-quality seaweed, building the certified trade mark and the standards that underpin it to build trust and credibility in the new industry, explore market options for monetising the carbon benefits and continue to support ongoing research and development.

FutureFeed will also work to establish partnerships in order to develop global markets.

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Big Dutchman equips two houses for organic pig production in Germany

THE only constant in life is change.

A farm in Surwold in the Emsland district in northwestern Germany proves that this quote is true.

Noreen and Michael Kröger converted their farm entirely to organic production and now follow Bioland standards.

This change not only affected the cultivation of their land but also their pig finishing business.

The couple purchased the equipment for its two welfare pig houses from Big Dutchman.

A new house with 598 animal places is already in operation.

The second open-air

pig house, which was renovated and left only the building envelope standing for some time, was recently completed – it offers room for 400 pigs.

The pens as well as the open-air runs of both finishing houses have a straw bedding.

The piglets are born on another organic farm.

They reach a slaughter weight of about 125kg on the Kröger's farm, which is 15kg more than is common with conventional finishing.

The Kröger couple produces the organic clover grass feed for their pigs directly on their farm.

Feeder

The feeding system comes with a very special feature.

Upon the Kröger's request, Big Dutchman

installed a dry feeder called PigNic Dry in the couple's finishing houses instead of the standard wet feeders.

This dry feeder was designed specifically for the Xaletto straw bedding concept – moist bedding is not hygienic and thus detrimental to animal welfare.

Other equipment in the pig house includes:

- Pig house lighting – Zeus ceiling lamp
- Feeding system – DryRapid 1500 dry feeding system
- Feed storage – outdoor silos
- Housing equipment – pen profiles and height-adjustable partition grids in the open-air runs.

For more information, visit bigdutchman.asia



Michael and Noreen Kröger produce organic pork.



Pig finishing with open-air runs.



Video of the Kröger family's pig finishing house.

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¹ AVERAGE OF 13 PUBLISHED STUDIES. Assumptions for the calculation: FCR improvement = 0.141, Live weight = 100 kg, Number of animals sold per year = 3000, Vaccination costs: \$7,139.
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