WORLD ASSOCIATION for ANIMAL PRODUCTION

Number 37 2024

www.waap.it

The World Animal Science News

www.waap.it

Main Topics

EDITORIAL

WAAP AAAP AAAS summary

For the past few months, I have been busy coordinating the combined Asian Australasian Animal Association for Production (AAAP) and Australian Association of Animal Sciences (AAAS) conference, which was held in Melbourne, Australia, from 9th-12th July 2024 (https://www.aaap2024.com). It was a great success, with over 570 delegates from 21 countries. The conference's theme was "Disruption – An Opportunity for Animal Sciences", and some of the plenary papers were undoubtedly disruptive. The submitted papers will be published in Animal Biosciences shortly, while some of the plenary papers will be published in Animal Production Science. For interest, I will briefly summarise some of the plenary papers here.

In the first plenary, Michal Watkins, from The University of South Australia, spoke about the paramount importance of ethical considerations in developing commercial products from indigenous foods. Australia's unique biodiversity, with bush foods offering superior nutritional benefits compared to many Western fruits, is a treasure that must be handled with care. These bush foods, rich in nutrients and supplying various micronutrients and phytochemicals, especially phenolics and antioxidants, could play a crucial role in the future of food consumption and environmental sustainability. However, as climate change jeopardizes existing food systems, it's crucial that research into bush foods and their uses by Aboriginal Peoples is approached with the utmost ethical considerations. With Aboriginal representation in the industry being under 2%, researchers need to collaborate closely with Aboriginal communities and businesses to achieve shared goals and mutually beneficial outcomes. Historically, Aboriginal traditional ecological knowledge has been exploited for profit without fair involvement or benefits for the knowledge holders. This presentation offered insights and reflections on Michael's research collaborations and partnerships with Aboriginal communities in the bush foods sector. These considerations should apply in other jurisdictions around the world.

... Continues

Editorial (continues)

Michael was followed by Dr Chris Ashworth from ZinPro, who presented the AAAS Underwood lecture on the role of dietary Zn in combatting viral diseases. Nutritional immunity traditionally refers to an animal host's ability to limit the availability of essential nutrient metals to bacteria, thereby reducing pathogenesis. Recent research, particularly in human medicine and immunology, suggests that this concept could be expanded to address viral pathogens, especially RNA viruses. RNA viruses include Rhinoviruses, Coronaviruses, and Influenza viruses, among others. In recent years, these viruses have significantly impacted human health and food-producing livestock and poultry. Notable disease pandemics caused by RNA viruses include African swine fever, avian influenza, and SARS-CoV-2, which have led to substantial economic losses in agriculture and significant human suffering. Given the rapid mutation of these viruses, which enables them to spread across species, there is a pressing need to explore alternative methods to prevent cross-species transmission. This urgency has been highlighted by the recent discovery of the Highly Pathogenic Avian Influenza A (H5N1) virus in dairy cows and its confirmed transmission to humans. This paper reviewed current research on the effects of dietary zinc on RNA viral biology and its potential as a preventive or therapeutic measure against diseases caused by RNA viruses.

In the second plenary, Dr Kirstie Richards spoke about her companies Autism and Agriculture program. Autism and Agriculture is a groundbreaking initiative by SunPork Farms and the Cooperative Research Centre for Living with Autism (Autism CRC) aimed at creating career opportunities in animal care for individuals on the autism spectrum. Launched in 2017, SunPork Farms welcomed its first autistic employees in Queensland and South Australia. Since then, these employees have found meaningful work, financial independence, and built friendships, while becoming essential members of the SunPork team. SunPork values its autistic employees as key contributors to the business and acknowledges that their inclusion has transformed the company's approach to human resources, enhancing business pride and workplace culture. The positive impact has been profound in many cases, with some autistic employees experiencing significant improvements in their lives and prospects. Neurotypical colleagues have also noted the beneficial effects of this inclusive approach on their own experiences.

The next speaker in the second plenary was Prof Lindewe Sibanda from the Board Chair of CGIAR who presented the McClymont lecture on "Reimagining resilient livestock food systems from farm to fork" in collaboration with Dr Appolinaire Djikeng from the International Livestock Research Institute, CGIAR. Prof Sibanda spoke of how livestock systems are at the heart of the most complex development challenges that the world grapples with today, from improving food security and livelihoods to addressing climate change and mitigating the threat of pandemic and Zoonotic diseases. Despite the challenges, Prof Sibanda spoke of the of the critical importance of livestock and the systems that they are part of. Indeed, globally 1.7 billion people are directly dependent on livestock for their livelihood and sustenance. Having said that, livestock systems must change to mitigate harm to the climate, the environment and human health. All of this needs to be done in a socially acceptable way, does not compromise the multiple benefits of livestock for development, and meets the anticipated growing demand for animal products, particularly in Africa and Asia. The lecture underscored the urgency and necessity of reimagining resilient livestock food systems to meet these challenges.

The third plenary focussed on mitigating greenhouse gas emissions and featured the Stobbs lecture presented by Assoc. Prof. Fran Cowley from the University of New England and a keynote paper by Dr Tim McAllister from Agriculture and Agri-Food Canada. Assoc Prof Cowley focussed on some difficulties of introducing dietary mitigation strategies into extensive grazing systems. Apart from the biological challenges of achieving methane (CH4) mitigation through in-feed supplements or forages, there are significant barriers to adopting both grazing and tropical cut-and-carry strategies. Introducing antimethanogenic forage species and supplements must be considered within the context of the entire

system, including the impact on dry matter intake basis (CH4 yield), animal-product basis (CH4 intensity), and enterprise/regional basis (total CH4 production), as well as incentives for adoption and logistics of practice changes. To overcome these barriers in grazing systems, specific research questions need to be addressed within a rigorous experimental framework. Field measurement of the impact of antimethanogenic technologies on emissions is highly desirable due to the contextual nature of pastures and grazing behaviours. However, spot-sampling measurement equipment can distort emission abatement estimates, especially when testing pulse-fed supplementary inhibitors. Temporal and environmental variations in the sward should also be considered. The lack of independence of animals within a grazing herd means the herd itself is the experimental unit, which raises logistical challenges with statistical power. The last decade of research on abatement of enteric CH4 emissions has seen significant progress, but future research efforts need to focus on practical, adoptable, and effective mitigation of CH4 emissions in grazing systems.

Dr McAllister discussed that to date, strategies have focused on lowering hydrogen production in the rumen, directly inhibiting methanogens, increasing the flow of H2 to alternative electron (e-) acceptors, or oxidizing CH4 after it is produced. Genetic selection for low-emitting ruminants presumably reduces enteric CH4 emissions through one of these mechanisms. Despite significant investment, few mitigation technologies are market-ready, and all face challenges and limitations. For instance, strategies that lower H2 production often impede digestion, methanogen inhibitors frequently lack specificity or are subject to microbial adaptation, and alternative electron acceptors may be toxic or reduce feed intake. Additives that have proven effective, such as 3-NOP, are currently limited to use in confined ruminant production systems, with few, if any, options available for grazing systems. Additionally, when reductions in enteric CH4 have been observed, not all H2 can be accounted for, and improvements in feed efficiency and growth have been inconsistent. Stoichiometric calculations can predict H2 flow in the rumen, but it is clear that our understanding of the connection between e- transfer, ruminal energetics and CH4 emissions is still lacking. Without economic incentives such as carbon offsets or penalties such as a carbon tax, adoption of CH4 mitigation technologies will depend on their ability to improve feed efficiency or the quality of milk or meat. To be continued…

Frank Dunshea
President WAAP

From WAAP Members

American Dairy Science Association® (ADSA®)

ADSA News

Are you planning to publish in—or review for—the *Journal of Dairy Science* or *JDS Communications*? If so, you can unlock significant publishing charge savings via the new ADSA Loyalty Rewards Program! Sign up to start saving.

You're invited | International Symposium on Ruminant Physiology (ISRP)

The premier, state-of-the-science event for ruminant physiology is coming to Chicago, Illinois, **August 26 to 29, 2024**. Happening only every five years, ISRP attendees get *the full and comprehensive* scientific story from the field--with topics ranging from feeding behaviour and rumen fermentation to postabsorptive intermediary metabolism and physiological and metabolic regulation. Learn more and review the abstracts

Accelerate your breakthroughs | Discover JDS Communications

Do you have preliminary data or hot evidence you want fast-tracked? Consider submitting to *JDS Communications*, the open-access sister journal of the *Journal of Dairy Science* (JDS). Unlike JDS, which is the perfect home for extensive and final research, *JDS Communications* offers an opportunity for sharing concise initial findings—all articles are 5 pages or less—and facilitates quick communication of novel discoveries, emerging trends, and timely information. Learn more

Graphical abstract tips | Savvy science styling

Are you crafting a graphical abstract for your next *JDS Communications or Journal of Dairy Science* paper? Get the tips and tricks to maximize your research's visual appeal, and help translate your science to readers. Download our new PDF and bookmark this page for future reference. Learn more

Listen | *Dairy Digressions* podcast

Listen in to the *Dairy Digressions* podcast as we explore the latest developments, fascinating discoveries, and breaking trends in the world of dairy science. Catch up on previous episodes, including early lactation disease markers, resilient dairy genomics, and assembled bovine blastoids. Learn more

American Society of Animal Science (ASAS)

ASAS News

AMERICAN SOCIETY OF ANIMAL SCIENCE

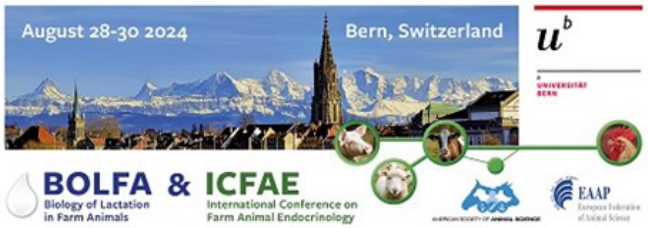
As a member of ASAS, we are sure you are aware of all the benefits that having a professional membership offer, including complimentary registration to monthly webinars and early access to the recordings, access to ASAS Journals, and discounted meeting registration to name a few. Remember to renew your ASAS membership or join ASAS to take advantage of these benefits. More information on memberships can be found on the Membership website.

The 2024 ASAS-CSAS-WSASAS Annual Meeting

The 2024 ASAS-CSAS-WSASAS Annual Meeting is taking place at the Calgary TELUS Convention Centre. The meeting sessions are intended to bring together scientists from industry, academia, and government and provide an opportunity for diverse ideas to inter-mingle for the greater good of animal agriculture and its relevance to human wellness. The program will feature a significant number of graduate student presentations in addition to invited talks, providing opportunity for networking among emerging student scientists and academic and industry professionals.

Make sure to check the meeting website for registration, housing, and additional meeting information.

BOLFA and ICFAE meetings



The "Biology of Lactation in Farm Animals" (BOLFA) and the International Congress on Farm Animal Endocrinology (ICFAE) meetings will be held at the University of Bern, Switzerland, as satellites of the annual EAAP meeting in Florence, Italy. The meetings in Bern take place from August 28-30, 2024. Current topics of lactation and endocrine systems in farm animal species will be discussed during the 3-day conference.

There is still time to register! You do not want to miss this comprehensive meeting.

You can check the programme here. For further details and registration, please visit the website.

European Federation of Animal Science (EAAP)

EAAP News

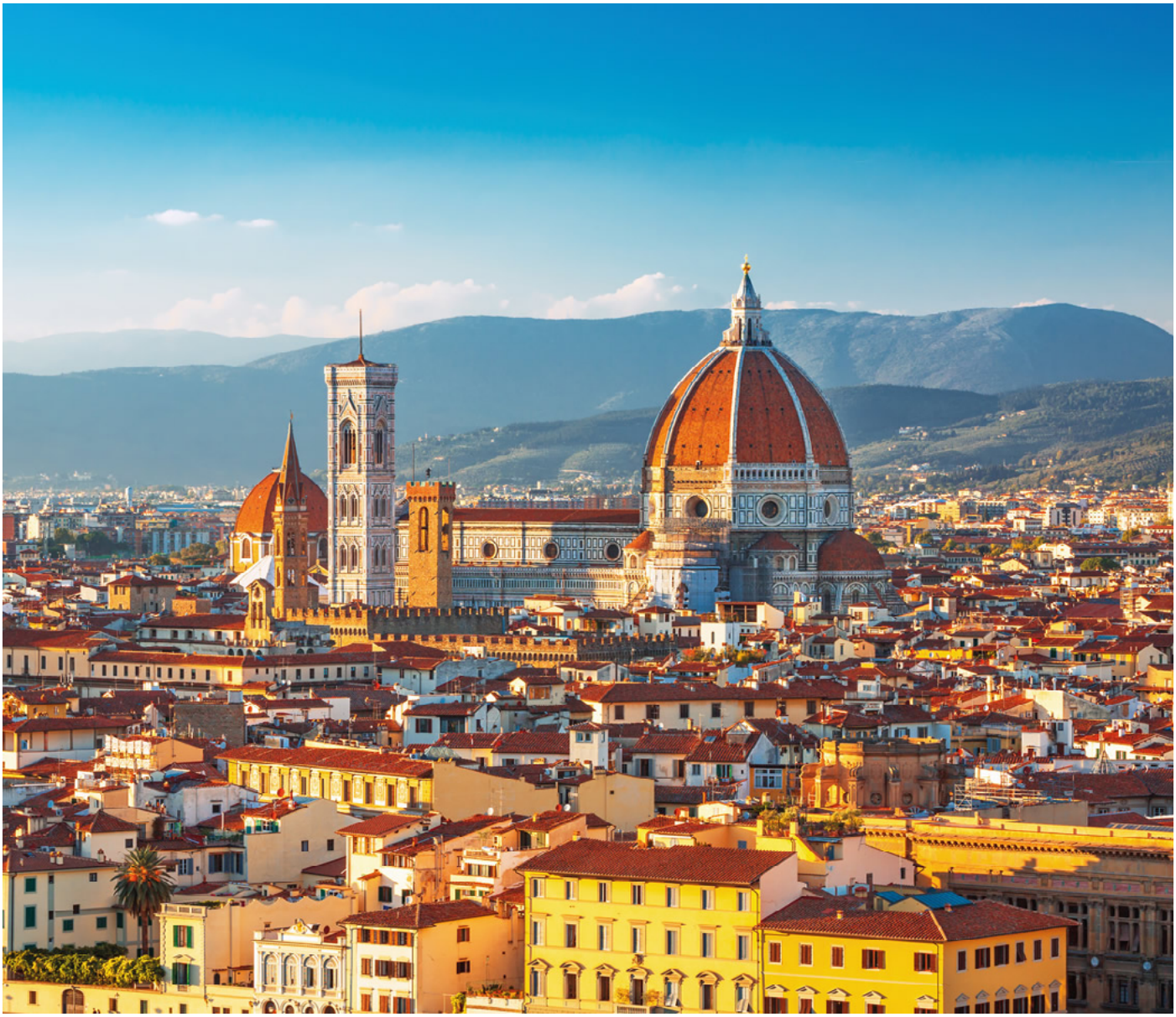
Kate Keogh from Ireland to Receive 2024 EAAP Young Scientist Award

We are delighted to announce that the 2024 Young Scientist Award will be presented to Kate Keogh from Ireland. This prestigious honour, granted by the European Federation for Animal Science, recognises early career researchers who have demonstrated outstanding research performance with a strong European dimension and perspective. Kate Keogh, an EAAP Individual Member, has shown exceptional dedication and innovation in her research, making significant contributions to her field. Her achievements exemplify the excellence and forward-thinking that this award celebrates. The award will be conferred during the Welcome and Award Ceremony, which will take place early September at the 75th EAAP Annual Meeting. As per the award's criteria, recipients are early career researchers not older than 38 years at the time of the annual meeting. We extend our warm congratulations to Kate Keogh and look forward to honouring her achievements at the upcoming ceremony.

Update on the 75th EAAP Annual Meeting in Florence

The 75th EAAP Annual Meeting will be held in the beautiful city of Florence. This year's event promises

to be the largest animal science conference in the world, with 1787 presentations scheduled across 98 scientific sessions, featuring both theatre and poster formats. As of now, we have approximately 1800 registrations, and we anticipate that more than 2000 participants will join us by the time of the meeting. The nine technical tours are quickly filling up, so if you haven't booked your spot yet, we encourage you to do so as soon as possible! We are in the final stages of completing the programme booklet, which will be available exclusively in electronic format this year to support our environmentally friendly policy. Additionally, we are putting the finishing touches on the conference App, designed to enhance your participation experience, and the Book of Abstracts, which can be purchased through the meeting website and collected at the EAAP stand in Florence. Our local organisers are diligently preparing to ensure a warm welcome, complete with excellent hospitality, engaging social events, and delightful Italian food for all participants. This year's Annual Meeting promises to be a memorable event, one that attendees will speak highly of for years to come. Don't miss out—be part of this exceptional gathering!



Nigerian Society for Animal Production (NSAP)

NSAP News

Conference announcement and call for article submission

The Nigerian Society for Animal Production (NSAP) in collaboration with Federal University Lafia will be holding her 50th Annual Conference (Lafia 2025) at the Federal University, Lafia, Nassarawa State, Nigeria. The theme and the date of the conference will be communicated through our subsequent contribution to WAAP Newsletter.

Call for journal articles

The Nigerian Journal of Animal Production (NJAP) is the journal of the Nigerian Society for Animal Production. NJAP hereby calls for submission of papers for publication. Visit the website for submission.

NSAP Young Scientist Award

The Nigerian Society for Animal Production is delighted to announce the NSAP Young Scientist Award 2024 sponsored by Prof. D. J.U. Kalla, (Fellow Nigerian Society for Animal Production). The intent behind organising the award is to bring deserving and thoughtful young talents to the spotlight by nurturing their creativity and perseverance. Entry will be opened on 1st December 2024 and closes 31st January, 2025.

South African Society for Animal Science (SASAS)

SASAS News

The SASAS held its 54th Congress from 3 to 5 July in East London, attended by >300 delegates. The SASAS Council was reconstituted with Dr Trevor Dugmore, President, Prof Schalk Cloete, Vice-President, and Prof Jannes van Ryssen, Honorary President. Other Council Members are Prof Cuthbert Banga, Mrs Amelia du Preez, Mr Heiko Köster Dr Helet Lambrechts, Dr Simon Lashmar, Mrs Jackie Tucker, and Dr Klaas-Jan Leeuw (co-opted member)

The Congress theme was "Animal Science and the Environmentally Stressed Production Animal". There was much networking, and fun filled a questionnaire competition among student delegates. The winning team was the University of Stellenbosch Animal Science student delegates. The Silver Medal award for excellence in Animal Science went to Prof Thobela Louis Tyasi of the Department of Agricultural Economics and Animal Production at the University of Limpopo, and Prof Abubeker Hassen of the Department of Animal Science, University of Pretoria.

The SASAS Communique and the South African Journal of Animal Science is accessed on the website.

News from Science

Customized voluntary waiting period before first insemination in primiparous dairy cows. Effect on milk production, fertility and health

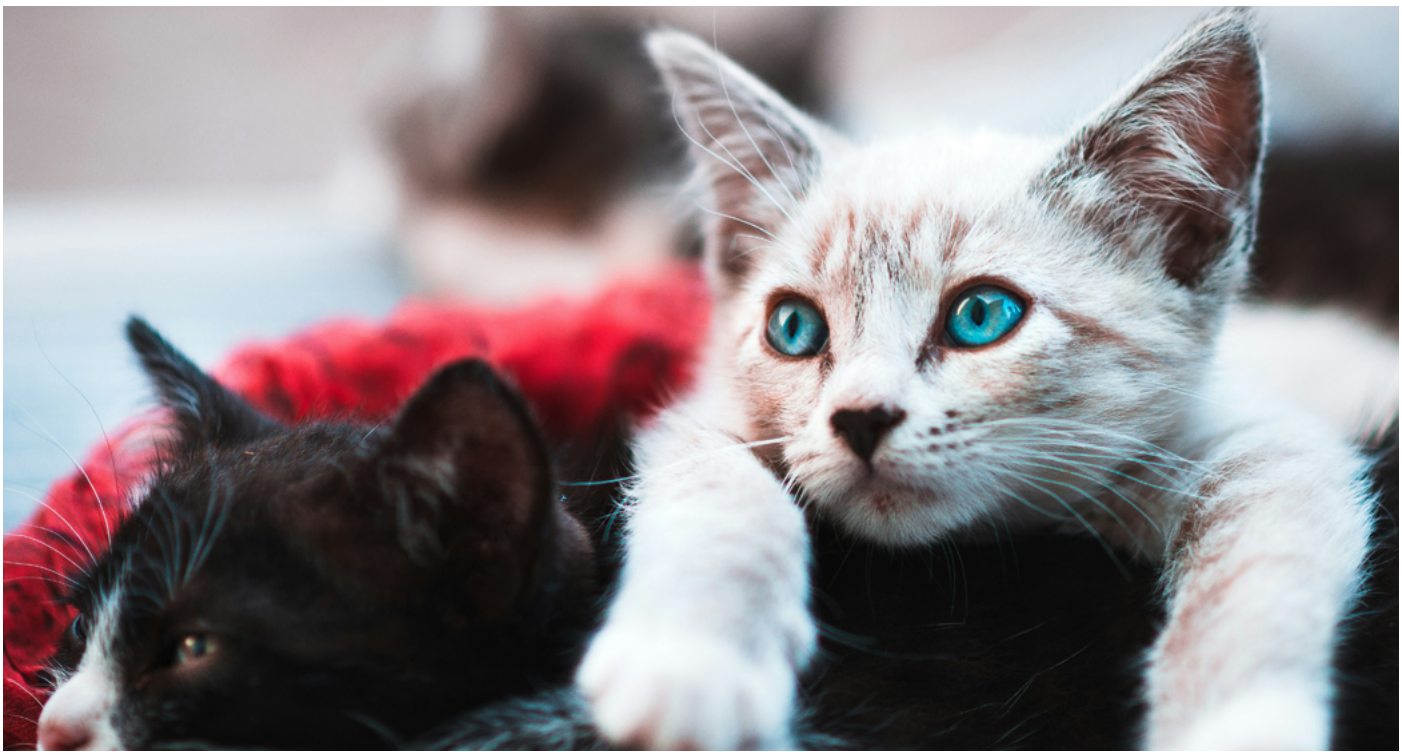
A study in Sweden tested customised voluntary waiting periods (VWP) before first insemination on 18 commercial dairy herds, focusing on milk production, fertility, and health in primiparous cows. Cows were selected for extended VWP based on three criteria: top 10% genomic persistency index, difficult calving or early lactation disease, and higher-than-average yield in early lactation. Selected cows were divided into two groups: ExtExt (extended VWP of at least 175 days) and ExtConv (conventional VWP of up to 100 days). Non-selected cows followed a conventional VWP. Results showed ExtExt cows had higher 305-day and whole-lactation milk yields but lower milk yield at dry-off compared to ExtConv cows. ExtExt cows also had improved fertility, with a higher first service conception rate and fewer inseminations per conception. Disease incidence was higher in ExtConv cows, but no significant differences in udder health or culling rate were found between groups. Extended VWP can benefit suitable primiparous cows by improving fertility without affecting milk yield or dry period length. Read the full article on Journal of Dairy Science.

Development and optimization of expected cross value for mate selection problems

This study tackles mate selection in the hybridization stage of a breeding pipeline, essential for the success of a variety development program. The proposed framework focuses on selecting individuals with optimal genomic traits to enhance the inheritance of desirable genetic materials. Unlike traditional methods using phenotypic values, this approach evaluates genetic combinations of potential parents. It introduces the expected cross value (ECV) criterion, which estimates the number of desirable alleles in gametes from pairs of individuals. This ECV criterion is used to create an integer linear programming model for selecting parents, controlling inbreeding levels. The model is tested on two applications: improving multiple traits simultaneously and designing multi-parental crossing blocks. A simulation study assesses the ECV criterion's performance. The study concludes by discussing how the ECV criterion and linear programming techniques can boost breeding efficiency and maintain genetic diversity in breeding programmes. Read the full article on Nature.

The role of carbohydrates in canine and feline nutrition

Companion animals are increasingly viewed and treated as family members; a trend termed the 'interspecies family' phenomenon. This shift has led to converging human and pet food trends, with a heightened focus on pet health and longevity. Carbohydrates (CHO) have gained renewed interest in the pet food industry due to their roles in energy metabolism, bowel movement modulation, immune function, and gut microbiota profile. Despite dogs and cats lacking defined CHO nutritional requirements, these nutrients provide energy and support digestive health. CHOs, particularly through starch gelatinisation, are crucial in manufacturing commercial pet foods via extrusion and retort processes. Non-digestible CHOs, or dietary fibres, are also increasingly important due to their impact on gut health, influenced by their solubility, fermentability, and viscosity. While advances in DNA sequencing and computational technology have begun to elucidate nutrient-host-microbiome interactions, further research is needed to optimise dietary fibre inclusion levels for dogs and cats. Read the full article on Animal Frontiers.



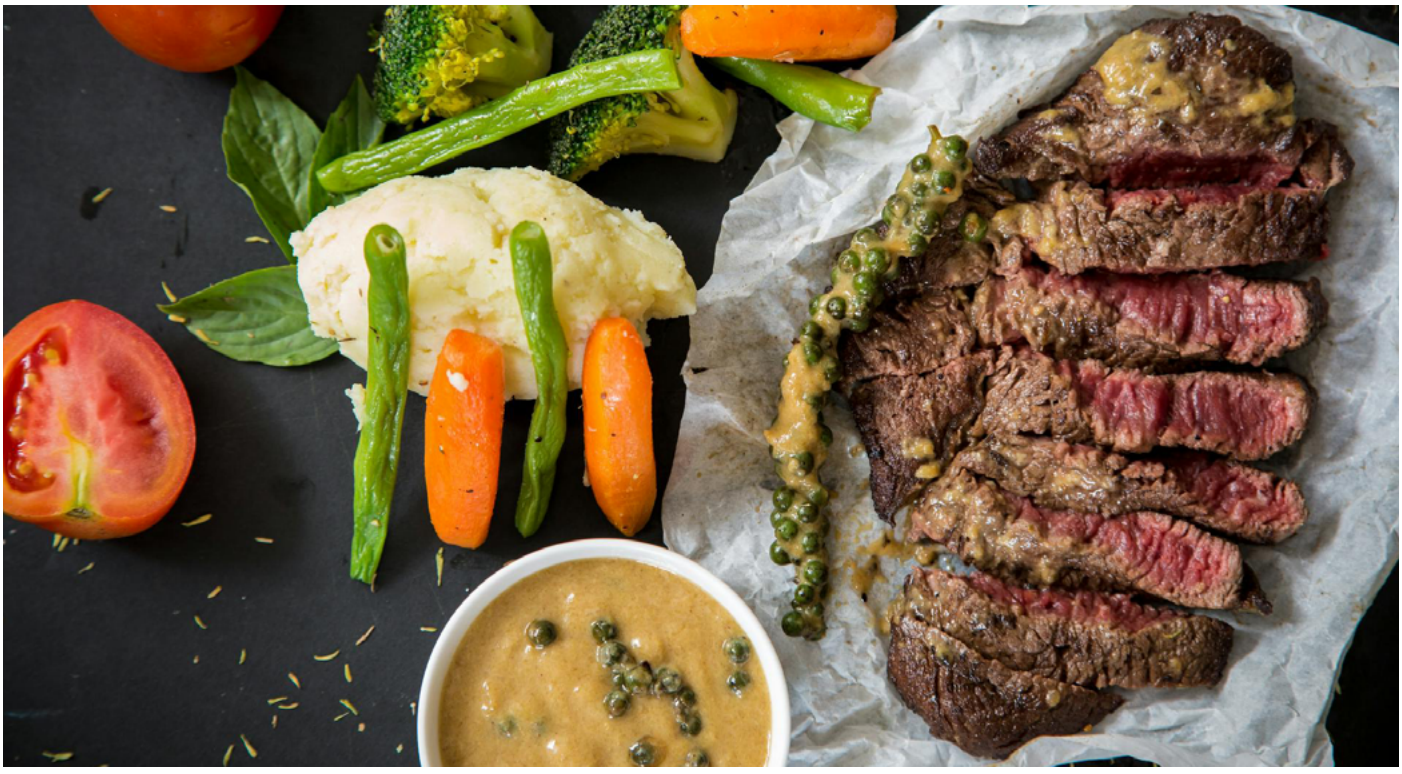
Combining short-term breath measurements to develop methane prediction equations from cow milk mid-infrared spectra

Predicting methane (CH4) emissions from milk mid-infrared (MIR) spectra generates substantial data crucial for genomic selection. Recent equations, developed using the GreenFeed system, averaged multiple CH4 measurements for accuracy, but this led to significant data loss due to infrequent animal visits. This study aimed to enhance prediction accuracy by calibrating equations on CH4 emissions adjusted for diurnal variations or modelled throughout lactation, thus reducing data loss compared to standard GreenFeed averaging. The calibration dataset included 1,822 spectra from 235 cows (Holstein, Montbéliarde, and Abondance), and the validation dataset had 104 spectra from 46 cows (Holstein and Montbéliarde). Predictive ability of equations using MIR spectra alone was low to moderate (R2v = 0.22–0.36, RMSE = 57–70 g/d). Equations using CH4 averages pre-corrected for diurnal variations performed better, particularly regarding prediction error, and allowed use of all available data without needing a minimum number of GreenFeed measurements. This study offers guidance for new prediction equations and introduces a new set based on a large, diverse population. Read the full article on animal.

News from International Organizations

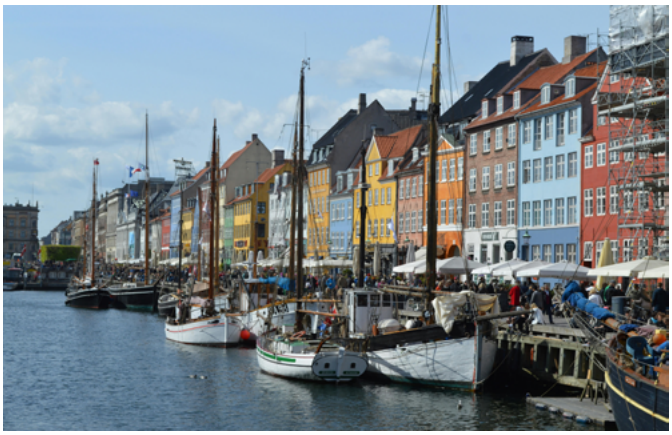
8.3% of people cannot afford a proper meal in the EU

Eight in one hundred people in the EU cannot afford a proper meal according to data from 2022, shared on Eurostat. 8.3% of the EU population cannot afford a meal containing meat, fish or a vegetarian equivalent every second day, which is one percentage point higher compared with 2021 (7.3%). And when it comes to the percentage of people at risk of poverty, this was 2.2 percentage points higher than in 2021, at 19.7% vs. 17.5%. This is a worrying situation and varies quite widely between different EU countries. Read the full article here.



Denmark will tax livestock farming for CO2 emissions

After months of negotiations with farmers and livestock farming organisations, the Danish government will introduce Europe's first carbon tax on agriculture. Denmark, a major exporter of pork and dairy products, will charge farmers for their livestock emissions starting in 2030. The Nordic country will be the first to tax livestock emissions to reduce methane emissions: 120 Danish kroner (about €16) per tonne of CO2 emissions will be charged to begin with, going up to 300 Danish kroner (about €40) in 2035. According to the government, this environmental reform aims to reduce Danish emissions by 1.8 million tonnes of CO2 in 2030, closing the gap towards the 2030 climate target. Read the full article here.



Job Offers

PhD position at Aarhus University, Denmark

A PhD position in Systems Biology & Bioinformatics MultiOmic Systems Biology of In Vitro produced cattle Embryos and Calves (MOVEC) is available at the faculty of Technical Sciences at Aarhus University. Applicants to this PhD position must hold a Masters' degree in directly relevant field (Genomics or Bioinformatics or Systems biology or MultiOmics data science) preferably within Animal & Veterinary sciences. Deadline: 15 August 2024.
For more information read the job vacancy.

Publications

1. New technical articles have been recently published on Engormix:

I. "Gut Health of Broilers in Response to Different Sources and Levels of Copper"

II. "Feed Conversion Ratio: Unveiling the Secrets of Sustainable Livestock Production"

III. "Scientists Say Choline is a Required Nutrient for All Cows"

IV. "Revolutionizing Aquaculture: Harnessing the Power of AI and ChatGPT for Sustainable Seafood Production"

Other news

European Regional Conference on Goats 2025

Regional Conference on Goats (IGA2025)

The Regional Conference of The International Goat Association (IGA) will focus on the scientific knowledge of the goat sector worldwide, focusing on aspects ranging from production technology, environmental and climate change, product quality and the socioeconomic and cultural aspects related to goat production. This important meeting will be held in Tenerife from May 14th to May 17th, 2025. The event is organized by the Unit of Animal Production, Pastures, and Forages in Arid and Subtropical Zones (Canary Islands Institute of Agricultural Research, Spain) and the Department of Agricultural and Environmental Engineering (Universidad de La Laguna, Spain), with the collaboration of the Institute of Animal Health and Food Safety and the Department of Animal Pathology, Animal Production, Bromatology, and Food Technology (Universidad de Las Palmas de Gran Canaria, Spain).

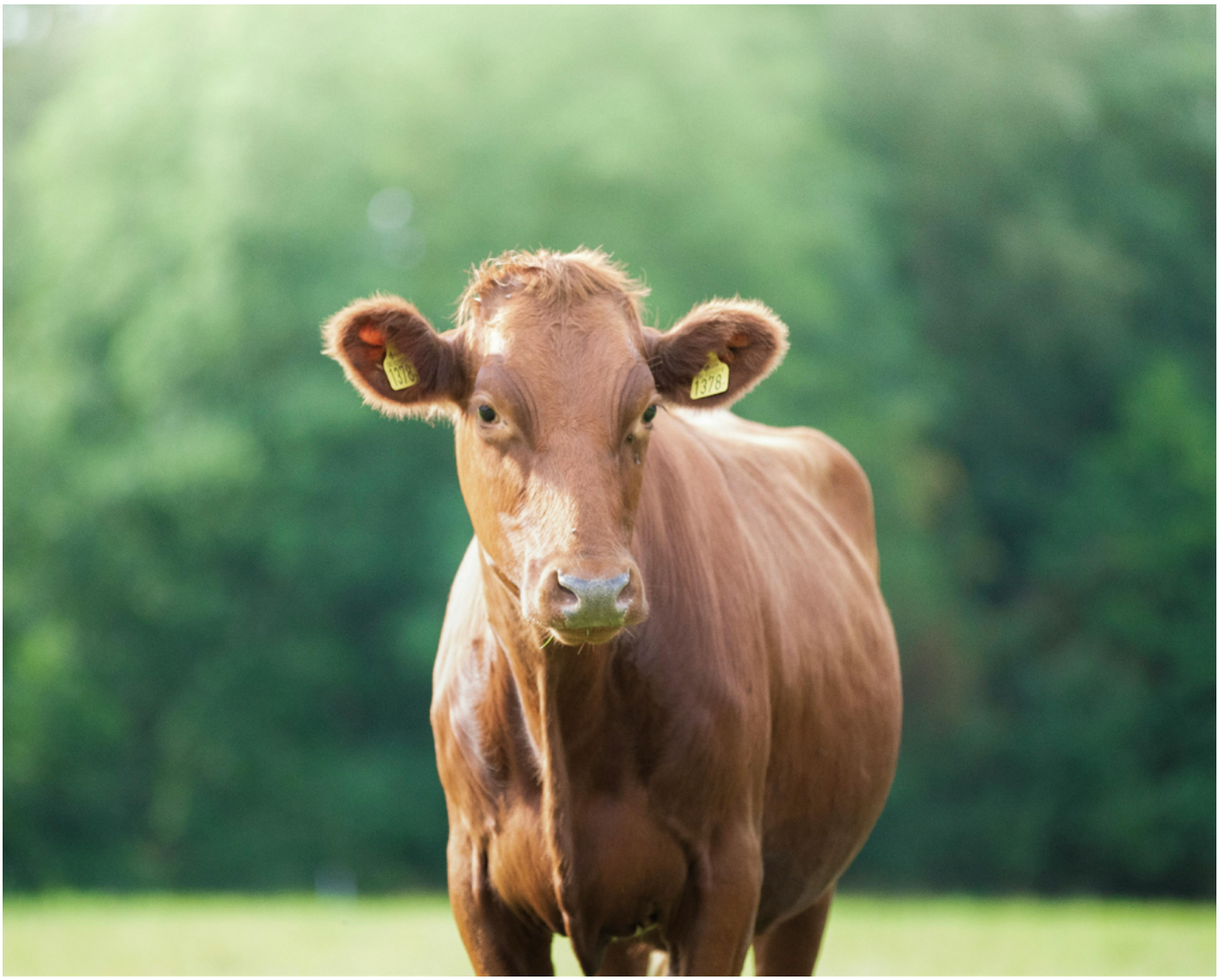
The Conference is entitled "FROM KNOWLEDGE TO PROGRESS," and will be structured in the following sessions:

- Animal Health and Welfare
- Genetics and Reproduction
- Nutrition and Physiology
- Precision Livestock Farming, Production Systems, and Product Quality

More information about the conference can be found here.

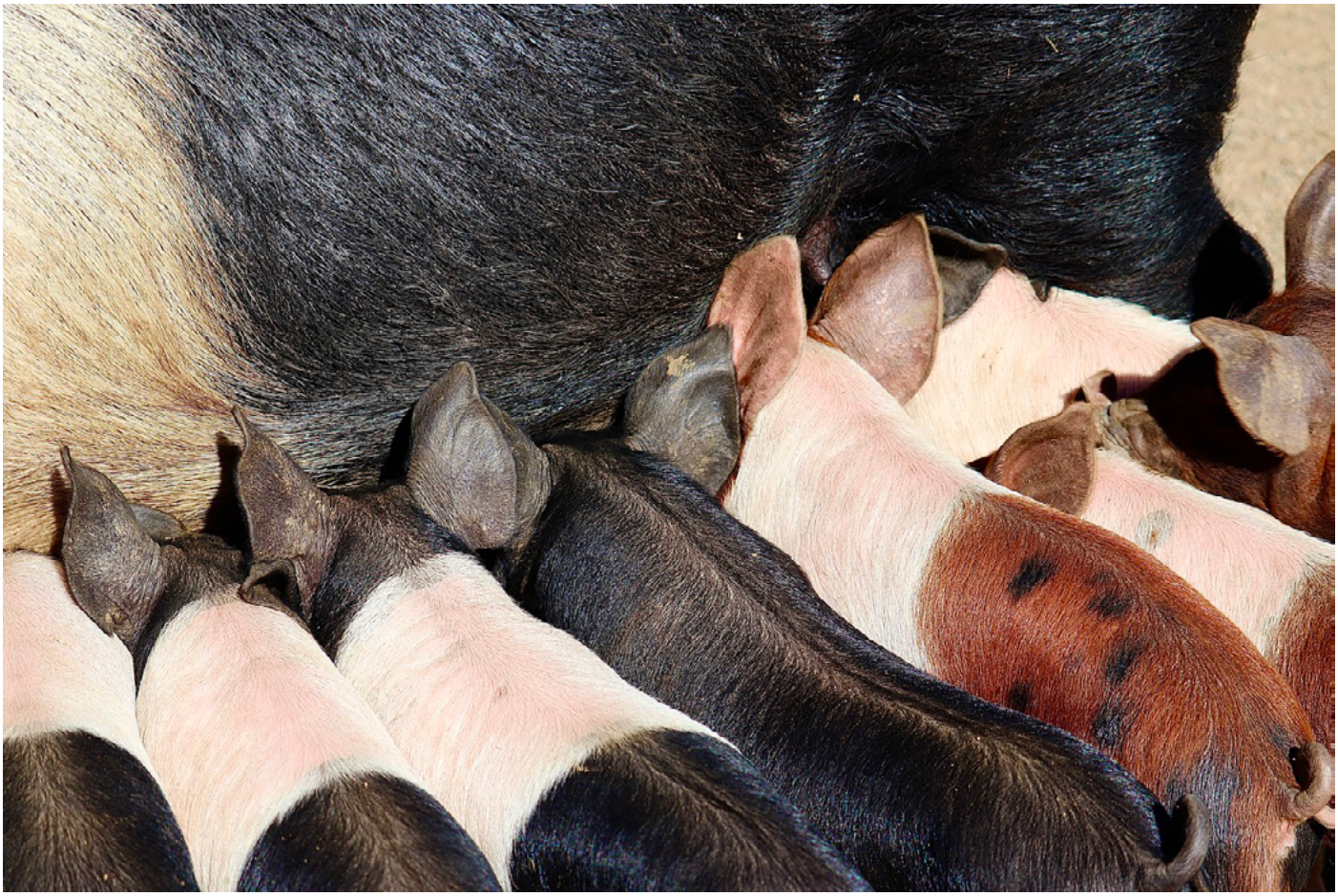
Change your diet, change your mind: meat is essential for mental health

Can we live well without meat and animal products? This is the question that is not often asked when discussing dietary change in the context of sustainable food production. Georgia Ede, an American medical doctor specialising in nutritional and metabolic psychiatry, explains why eating meat is essential for mental health and reducing the risk of depression and anxiety. She spent many years at Harvard University studying the relationship between what we eat and our mental and physical health. Read the full article here.



Lactating sows: heat stress only in summer?

This is the time of year when everyone pays extra attention to preventing heat stress. But why focus only on summer? Lactating sows can suffer from heat stress year-round in the farrowing house. At 90% humidity and a temperature of 22°C, a sow is already experiencing heat problems, as the optimal temperature for a sow is around 18 to 20°C. Therefore, it is important to take appropriate measures throughout the year without overdoing it. Read the full article here.



Meetings and Conferences

WAAP invites you to check the validity of the dates for every single event published below and in the Calendar of the website, due to the state of sanitary emergency that World is currently dealing with.

Event	Date	Location	Information
International Porcine Reproductive and Respiratory Syndrome Symposium (IPRRSS 2024)	7 – 9 August 2024	Yantai, China	website
International Symposium on Ruminant Physiology (ISRP)	26 – 29 August 2024	Chicago, Illinois, USA	website
BOLFA & ICFAE meeting	28 -30 August 2024	Bern, Switzerland	website
9th International Conference on the Welfare of Animals at Farm Level (WAFL)	30 – 31 August 2024	Florence, Italy	website
75th EAAP Annual Meeting	1 – 5 September 2024	Florence, Italy	website
International Symposium on Gaseous and Dust Emissions from Livestock (EmiLi)	24 – 26 September 2024	Valencia, Spain	website
32nd International Symposium Animal Science Days 2024	2 – 4 October 2024	Oberaichwald - Carinthia, Austria	website
TIAR 2024 – Turkish & Italian Joint International Animal Reproduction Congress	10 – 13 October 2024	Antalya, Turkey	website
Pig Research Summit 2024 – Sustainable Pig Feed for the Future	20 – 21 November 2024	Copenhagen, Denmark	website

More conferences and workshops are available on EAAP website.

The **World Animal Science News** is the Official WAAP Newsletter. This interesting update about activities of the global animal science community presents information on leading research institutions in the entire world and also informs on developments in the industry sector related to animal science and production. The Newsletter is sent to all WAAP member organizations and to their associates. You are all invited to submit information for the newsletter. Please send information, news, text, photos and logo to waap@waap.it .

WAAP Secretariat is located at the following address: Via G. Tomassetti 3, A/1 - Rome (Italy). Tel.: +39-06-44 20 26 39; E-mail: waap@waap.it

Production staff: Marlène Sciarretta, Frank Dunshea, Andrea Rosati, Eleonora Azzaro, Federica Motterle.

Graphics design and layout: Gianfilippo Ercolani, Danilo Domenici.