

# RENDERING CIRCLES



## 16th ARA Symposium wrap-up

### 2022 SPONSORS

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## PRESIDENT'S MESSAGE



Rendering Circles is back after a hiatus of eighteen months! Rendering Circles is a valuable method of getting information to ARA members, and after a successful symposium in Brisbane, there is plenty to report in this special Symposium edition. In particular, the sponsors of the Symposium deserve recognition for their generous support.

In preparing for the Symposium, I had a look back at the topics that have been presented previously. Symposium programs provide an intriguing history of the issues that the industry has faced over the years.

Back in 1991, the first Symposium's main topic was feed safety. BSE and Salmonella were on the agenda, and National Renderers Association identity, Dr Fred Bisplinghoff, was the principal speaker. The safety of rendered products was the issue of the day, and Brian Bartlett had the foresight to address this. Apart from initiating the Symposium, he introduced the ARA workshop on hygienic Rendering and started work on the Code of Practice, which led to the accreditation of rendering plants and the market-access program.

Environmental control was a lead topic at the second Symposium in 1993 and has remained on the program at every Symposium since. In 2001 biodiesel was first discussed, recovery from fire and fire risk was introduced in 2003, and both became regular topics at subsequent symposia. By 2015, control of foreign material was the big issue for the ARA, along with water management. Species testing by PCR was the new topic in 2017, and in 2019, burgeoning demand for tallow as feedstock for renewable fuels dominated the symposium discussions.

At the 2022 symposium, the theme was innovation, but sustainability emerged as the main message. The topic of sustainability and carbon emissions had entered the 2013 symposium, but almost every speaker in 2022 had something to say about sustainability. When sustainability was first on the program, the discussions were about how to justify and promote Rendering as a sustainable industry. However, it is now accepted that Rendering contributes to many aspects of sustainability. One intriguing example is the FPRF's work on using low-value rendered products for land-use remediation. The Symposium was the ARA's second face-to-face meeting since the outbreak of the COVID pandemic, and it was a pleasure to get together with friends and colleagues.

COVID has presented us with unprecedented levels of challenges. Trading conditions remain difficult. There are labour shortages throughout the world. Labour supply is reducing manufacturing capabilities, lengthening lead times and, in many cases reducing product ranges. We have also seen shipping delays, container shortages, record-breaking profits for shipping companies, wood shortages and gas shortages. Freight has never been more expensive, and our products take longer to reach markets. We are not on our own, and things have only become more challenging with the war in Ukraine. As a result, business leaders I have spoken to are scrapping long-range strategic planning in favour of the here and now. They are issuing tactical plans to manage their businesses day-to-day.

Thanks to COVID, face-to-face meetings have been replaced by virtual audiences, like our last AGM. This reminds us of the strength and importance of ARA membership and keeping connected. In fact, the Executive has held more meetings in the past year than in any other year, at least since my first involvement in 2016.

Getting used to alternatives to face-to-face meetings combined with the pace of change and challenges to be met have encouraged the virtual meeting habit. COVID has not stopped Dennis and the Directors from planning for the future. We have identified the activities and initiatives necessary to facilitate change and grow our capabilities. Specifically, we need to do more about market access, supply-chain integrity and innovation.

We have been successfully awarded the federal ATMAC Grant funding to assist with marketing and promotion in existing markets. This funding also helps us to investigate the feasibility of new markets. Increasing our exposure to markets and raising our market intelligence remains high on our agenda.

Supply-chain integrity is our strong suit, and we will continue working with the Department of Agriculture to ensure we are well-placed to take advantage. Innovation will come in the form of rebranding our website. The website's function will be updated to cast a wider net and attract interest from our supply-chain partners and R&D providers.

As we take on more actions and initiatives, we have seen the need to meet more often and make decisions for change. Change has identified the need to provide more capability to the team. As a result, Jess Bloomfield has been appointed as our Executive Assistant in support of Dennis. As you have seen, Jess has also coordinated and facilitated the planning and execution of the Symposium. Well done, Jess and Dennis!

Management and development of the ARA is a team effort. This is an approach that Andy Bennett fostered, and I am happy to continue. The ARA directors have a range of skills and experience, and I would like to thank them all for their time, input and contributions over the past year.

Finally, I hope those who attended the Symposium took the opportunity to reconnect with colleagues and found the program informative and valuable. I encourage all to support the suppliers who attended and sponsored the Symposium.

## ATMAC GRANT

President Peter Milzewski told members at the annual general meeting that Dennis King had prepared an application for a government grant. The grant of \$462,000 for diversification and expansion of market opportunities was subsequently approved. The funding is provided through the Department of Agriculture's Agricultural Trade and Market Access Cooperation program.

The initial activities supported by the grant are projects in Indonesia and Thailand. Two workshops to promote the nutritional benefits of Australian rendered products in poultry feeds will be held in Indonesia. About 50 producers of poultry feed are expected to attend. Professor Bob Swick of the University of New England will lead the workshops. The ARA will also hold meetings with Indonesian feed producers and key importers. Peter Milzewski, George Schinard and Dennis King will represent the ARA at these meetings.

In Thailand, the ARA will take a display booth at the VIV Asia feed-to-food exhibition in Bangkok in March. The exposure will be used to promote Australian rendered products on behalf of ARA members. The booth will be staffed by Dennis King and ARA directors Ashley Palmer and George Schinard. Director Michael Betar is also attending the exhibition in a private capacity and will help on the stand.

Promotions in other importing countries and updates to the ARA's image and website are also planned as part of the grant.

## DENNIS KING



Dennis King has decided to retire from the ARA's Executive Officer position. Dennis says there is no fixed retirement date but expects a new EO to be in place before the end of June. Dennis will be involved in handing over the reins to the new incumbent, and this could take several months, bearing in mind the commitment to the ATMAC grant and other projects that Dennis has been closely involved with.

The ARA has received several applications for the EO position, and the Directors are currently assessing the applications.

## INTRODUCING JESS BLOOMFIELD



### Jess Bloomfield at the Symposium

After 30 years and 15 symposia, the ARA decided it needed professional help to organise the Symposium. Jess Bloomfield was appointed to manage the symposium arrangements. She did such a good job that the ARA asked her to take a broader role in the ARA, and Jess is now handling much of the ARA's administration. This leaves Dennis King to put more time into big-picture issues, including market access and external relations.

Jess is a ruminant nutritionist and has worked as a consultant with dairy, beef and sheep enterprises to improve the diet and productivity of livestock. She is the Executive Officer of the Australian Association of Ruminant Nutrition (AARN) and organises the AARN conference. Jess now adds ARA Executive Assistant to her portfolio.



Rendering Circles January 2023,  
Produced by  
William Spooncer AM

# ARA AWARDS

As usual, the Symposium Gala Dinner included an awards presentation and fund-raising for Assistance Dogs Australia. Tim McCallum and his dog Casper were at the dinner to represent Assistance Dogs Australia and to entertain the crowd. The total amount raised for Assistance Dogs Australia was \$11,756. This amount included personal donations, proceeds from auctioning "The Bat", and an original painting donated by after-dinner speaker George Gittoes AM. Regular ARA auctioneer Mike Nolan could not attend the Symposium, and Simon Quilty did the auctioneering. Matt Conouly of Commodity Inspection Services is the new owner of the bat (and ball).



**Bill Spooncer congratulates the Ron Lyon award winner, George Schinard, as Dennis King supervises**



**Tim McCallum and his dog Casper take the stage**



**Bill Spooncer drinks to Brian Bartlett award winner David Pinches**



**Andy Bennett, Simon Quilty, George Schinard and Dennis King auction The Bat**

ARA life member Bill Spooncer AM presented the awards. The Ron Lyon award went to George Schinard for his contribution to the ARA as a director and member representing Wilmar Trading Australia. George has taken on many tasks as a director.

He takes on the tricky jobs that no one else wants. He is also willing to share his specialist knowledge of protein markets, which has been invaluable in developing the ARA's market access policies and presentations.

David Pinches received the Brian Bartlett Award. Apart from servicing the Australian rendering industry through his companies Keith Engineering and Abattoir Engineering, David is a direct supporter of the ARA. Keith Engineering has been a major sponsor of the Symposium since sponsorships started in 1999. David's Keith Engineering has also contributed money and talent to the ARA's workshop on hygienic Rendering for many years. David also supports the industry by partnering with MLA, AMPC, and Monash University to conduct research on rendering technology.

Some of the Reg Evans Best Student award winners for the last few ARA workshops on Hygienic Rendering were at the symposium dinner. Their achievements were acknowledged by acclamation, and those present stood to take a bow. Winners since the last awards ceremony in 2019 are:

**Feb 2020:**

Ian Patterson, Thomas Foods Tamworth

**Jun 2021:**

Sam Van Kleff, Master Butchers Protein

**Jan 2022:**

Garry Moffet, Thomas Borthwick Mackay

**Feb 2022:**

Anthony Simone, CSF Melbourne

**Jun 2022:**

Jemma Sheppard, Stanbroke Beef

# INDUSTRY FORUM

The ARA's 16th Symposium was preceded by an industry forum. The free forum has become a feature of the Symposium and follows on from the MLA workshops that piggybacked on the 2001 and 2003 symposia. The forum program was planned to attract practical renderers and focussed on rendering operations.

The program started with an update on antioxidants. Danny Gauthier of Camlin Fine Sciences (CFS) and Nick Velletri of Craig Mostyn discussed the range of antioxidants, both natural, such as rosemary extract, and traditional such as BHA and TBHQ. CSF is the largest supplier of BHA and TBHQ. These and other antioxidants are optimised by combining them in natural and synthetic blends. Back-up from CSF includes laboratory services to quantify active ingredients in treated products and to measure oxidation for shelf-life studies. CSF also provides application solutions in conjunction with its partner, Spraying Systems Co.

Nick Velletri has joined Craig Mostyn, based in Perth, to develop antioxidant distribution. He discussed the uses of different antioxidants and blends and explained the application systems. Applications can include automatic recording of dosage. The dose records are available to customers and renderers in real-time. The systems use pumps and spray nozzles that create mists rather than direct sprays. This gives uniform distribution of antioxidants in the product. Also, the spray volume is automatically adjusted according to product flow.



**Peter Milzewski Introducing Zane Beard and Paula Eggers**

Inflation and increasing costs are the current attention-grabbers. Rendering is not immune, and insurance premiums are one of the costs that is racing ahead of most others. Major fires at Australian and New Zealand rendering plants have "fuelled" insurance premiums. Paula Eggers and Zane Beard from Marsh Insurance Brokers gave advice about how to mitigate fire risks. They explained that while risk mitigation may not result in a direct reduction in premiums, it can move a site from an uninsurable to an insurable category. A good record may eventually lower premiums. Fire-risk mitigation also helps renderers to examine their insurance cover with confidence that they can reduce premiums by taking on some of the loss risks.

In a processing session, major suppliers to the Australian

rendering industry and sponsors of the Symposium, Haarslev, Keith Engineering and Rendertech, gave presentations. Paul Martin presented data from Haarslev's CORE software. He illustrated the degree of control over product quality and the payback that can be achieved using CORE adaptive controllers. Paul explained that algorithms of the CORE software learn from operations data to improve the performance of standard PLCs. Outcomes include a 10% improvement in dryer temperature stability. This leads to increased product quality and yield and a 10% reduction in steam use.

Derek Henderson of Keith Engineering discussed determining what is needed in a spare parts inventory. He identified parts that must be on hand to conduct preventive maintenance and parts needed to limit downtime in the event of an unexpected failure. He gave recommendations for parts that should be held on-site for the major pieces of equipment. He also provided recommendations about how to store spare parts.

Henning Haugaard, also of Haarslev, talked about improving the quality of rendered products. He discussed different methods for drying blood meal and feather meal and indicated the relationship between drying methods and the digestibility of the dried meals. Steve Dunn of Rendertech discussed improvements in the control of waste-heat evaporators. He explained the hybrid-rendering system, a cross between high and low-temperature Rendering. By adding a pre-cooker to a high-temperature plant, waste heat from the cooker vapours can be used to evaporate water from the liquid phase. James Richardson took over from Steve to explain the benefits of Rendertech waste-heat evaporators. He listed the variables affecting evaporator performance and the measurements needed to control the variables. In particular, he discussed the in-line measurement of brix to understand the solids content of the concentrate.



**Paul Martin, Haarslev; Derek Henderson, Keith Engineering; Henning Haugaard, Haarslev; Steve Dunn, Rendertech; at the processing panel**

The afternoon session started with Brendan Mason of Inoplex talking about biogas generators. He summarised potential energy sources and then focussed on anaerobic digestion to produce biogas, mostly methane. He said that methane could be corrosive if used directly in boilers, and co-generation to produce electricity is a better option. One way to improve the performance of covered anaerobic lagoons (CALs) is to use anaerobic membrane bioreactors to filter out microbes. The biomass can then be returned to the CAL. Biogas

production may be variable in quantity and quality. Still, biogas co-gen engines can be supplemented with natural gas or even gasified solid fuels such as wood chips, plastics or tyres. These solid fuels can be used to produce syngas hydrogen, which can supplement biogas. In answer to a question, Mason said that biogas and syngas could both be used to fire a boiler directly, but he warned to keep an eye on the boiler.

Effluent treatment, one of the most frequent topics at ARA symposia, was next on the agenda. Jonathan Cray and Martin Jansen of Mann & Hummel Life Sciences and Environment discussed membrane filtration to produce reusable water. They presented a case study of membrane filtration at a rendering plant. Effluent treated through a biological nutrient removal (BNR) process is passed through ultrafiltration membranes, then a carbon filter and reverse osmosis. The resulting water can be reused in the plant, saving effluent disposal costs and bore water allocation.

The final presentation of the workshop was by Megan Duniam of O'Brien Energy. Carbon emissions were a theme running through many of the day's presentations. Duniam summed up the types of fuels preferred by boiler manufacturers, bearing in mind carbon reduction targets. She said that 44% of energy is used by industry, primarily for heating, and natural gas is the most prevalent fuel for this use. She noted that electrification and hydrogen are emerging energy sources, but hydrogen is not going to replace natural gas until 2040. Megan compared the costs of diesel, LNG, waste oil and LPG and gave advice about selecting the right fuel and looking for energy savings.



**Symposium VIPs: NARA Executive Officer Kent Swisher, NARA Chairman Mike Smith and ARA President Peter Milzewski**

In his opening address, ARA President Peter Milzewski summarised some of the trends and achievements of previous symposia. He illustrated how the symposium programs provide a record of the issues and interests that have attracted the attention of the ARA and the world rendering community over the years. Peter reminded members of the role that the late Brian Bartlett AM played in establishing the symposium series.

The first speaker of the 2022 Symposium was Stephen Bartholomeusz of Neste. He took up the theme of renewable fuels from the 2019 symposium and emphasised the importance of sustainable aviation fuel in the renewable fuel mix. Bartholomeusz quoted the World Economic Forum's assessment that forty million tonnes of waste and residue fats could be available for use as sustainable-fuel feedstock. To put this in perspective, the pre-COVID demand for jet fuel was 300 million tonnes per year.

He said that to meet the target of no net-carbon emissions by 2050, there must be substantial reductions in carbon emissions in the transport sector. The necessary reductions cannot all come from renewable fuels. There must be multiple solutions, including electrical and hydrogen power alongside renewable fuels.

There was more discussion of low-carbon fuel sources by Jordan McCollum of the Australian Gas & Pipeline Association and Dave Alden of BP. Alden explained that BP is becoming an integrated energy company instead of its historical role as an oil and gas supplier. Bioenergy is the transition-growth engine for BP. BP is investing in five new renewable-diesel plants and supplies sustainable aviation fuel at two airports. But Alden echoed the comments of Neste's Bartholomeusz in saying that available feedstocks cannot meet the demand for biodiesel and renewable diesel. New feedstock sources must come from novel agriculture, such as Carinata and second-generation green-waste digestion.



**WRO executive Lars Krause-Kjaer, Denmark; Damian Evans, Australia; Doyle Leefers, USA; Lucas Cypriano, Brazil, at the WRO meeting held after the industry workshop**

## ARA SYMPOSIUM

The Australian Renderers Association held its 16th International Symposium in Brisbane at the end of September. The Symposium was only the second time ARA members had come together face-to-face since the start of the COVID-19 pandemic. In addition, it was the first time the ARA held the Symposium in Brisbane. There were at least as many people at the Symposium as attended in pre-COVID days, but in what might be a sign of the times, there were slightly fewer overseas attendees and more Australian locals.

## INNOVATION

The theme of Day 1 of the Symposium was innovation, and speakers from the WRO gave updates about innovation in their regions.

Lucas Cypriano from Brazil said that the demand for biofuels is the most significant change in rendering from 1961 to 2022. He said 20% of vegetable and animal fats

are going into biofuel. Markets now regard animal fats and protein meals as sustainable products. Cypriano discussed biofuel feedstocks, saying that 10.3 million metric tonnes of animal fats are going into renewable diesel. However, 57 million metric tonnes of feedstock is needed to meet the demand for sustainable aviation fuel by 2050. He questioned where this feedstock would come from and doubted whether the supposed forty million metric tonnes of waste and residue fats were available.

He identified new technologies, including real-time in-line NIR measurement linked to automatic adjustment of presses and remote control of antioxidant and Salmonella inhibitor dosage into protein meals.

Sjors Beerendonk of Darling Ingredients gave the EU perspective on innovation. He said BSE had forced EU renderers to look for new uses of rendered products. He also listed the latest drivers for innovation as sustainability; energy scarcity and costs; ESG reporting; EU climate agenda, and entrepreneurship. He said that entrepreneurial renderers cannot grow business from fixed livestock slaughter and are looking at manure processing, digestion of organic waste and insect meals. Doyle Leefers of National Beef and the NARA continued the theme of sustainability. He said that the US EPA had acknowledged the role of the rendering industry in the Food Recovery Hierarchy. This demonstrates that Rendering contributes to the sustainability of the food chain as a whole.

Leefers gave some examples of innovation in North American Rendering, focusing on the work of the FPRF. He highlighted the work of Dr Kevin Finneran to improve and remediate contaminated soils using low-value rendered products, another example of how Rendering can contribute to sustainability.

The New Zealand view of innovation came from Richard McColl, Manager of Innovation at the NZ Meat Industry Association. McColl said the vision of the MIA is to grow sustainability and value together. He identified industry drivers of innovation as increased product value, improved processing technology, food safety and security improvements, and sustainability.



**Innovation panel: Richard McColl; Doyle Leefers; Sjors Beerendonk; Lucas Cypriano, and Session Chair Damian Evans**

In a separate session, Matt Deegan of the Australian Meat Processor Corporation (AMPC) gave an Australian take on sustainability. He described some of the sustainability projects being conducted by the AMPC. He said that the CO2 equivalent emissions from the red-

meat processing sector had fallen 28% from 556 to 397 CO2e per tonne of hot standard carcass weight in the ten years from 2010 to 2020. But this is not enough to meet the target of neutral emissions by 2030.

He gave examples of research aimed at speeding up the journey to carbon neutrality. The projects fall into the categories of thermal efficiency; bioenergy; clean fuels initiative; and class A water recycling. He cited examples of covered anaerobic lagoons, co-generation, and biomass boilers in the bio-energy category. He said three meat processors are installing test boilers to assess the use of multiple biomasses, including paunch contents. In the clean fuel initiative, AMPC supports projects using purchased hydrogen to generate electricity. This is intended to give the industry the confidence and capability to use hydrogen.

## SYMPOSIUM DAY 2



**Simon Quilty and Brett Stuart**

Simon Quilty and Brett Stuart of Global Agritrends were the keynote speakers at the start of the second day. Their theme was the opportunities and challenges in trade and emerging markets. They had some interesting things to say about plant-based meat products and trends in vegetarianism. They pointed out that investor appetite for plant-based protein may not be the same as the purported consumer demand. For example, shares in Beyond Meat fell from \$235 in July 2019 to \$15.88 today. Plant-based substitute meat products are only 0.3% of the USA meat market. During COVID, the market share of plant-based proteins increased, but so did the sales of organic products. This was because consumers were pursuing supposed healthy-eating trends, but demand has been falling since the COVID peak. The fad for plant-based protein appears to be over unless the products are improved.

Similarly, vegetarian eating habits are not growing as is sometimes portrayed. About 4% of consumers are vegetarians, which has stayed around 4-6% over the last 20 years. During COVID the proportion of meat-eaters dropped to about 71% of the population but is now back up to the regular proportion of 81%. The balance is made up of flexitarians and pescatarians. The reality is that it costs money for consumers to change their eating habits.

Quilty and Stuart discussed the conventional pressures on livestock and meat production, including weather events, feed costs and disease. These all impact meat

production and costs, but consumer interest in reduced-meat diets has not had a significant effect so far.

Ben Robinson of AUS-MEAT spoke about processes and product integrity. AUS-MEAT is an internationally accredited certifying body that provides certification services to over seventy industry programs. ARA accreditation and market access certification are one of these programs. The integrity of the programs is underpinned by AUS-MEAT business practices, including ISO 9001:2015 certification and third-party certification of all auditors. He summarised the findings of the seventy-seven ARA audits conducted over the last year. He also explained the advances in auditing technologies, such as body cameras and voice recording.

## MARKETS

ARA director Michael Betar introduced a market intelligence session by emphasising the changes in destinations for exported rendered products in the last 30 years.

Erick Romero from Scoular gave an update on rendered products in Mexico. He said that 100% of imported rendered products are from the USA. Australia cannot compete with US-product on price because of the freight disadvantage; US-product is all imported by rail. There may be future opportunities for specialty ovine and poultry meals imported from Australia. Australia is negotiating import requirements with Mexico, and Romero expects there will be opportunities for ovine meals when Australian rendering plants are approved.

Kent Swisher of the NARA discussed market opportunities in the USA. These opportunities are due to the demand for sustainable reclaimed resources, i.e., tallow, for biofuel feedstock. He explained the renewable fuels standard and the Californian low-carbon fuel standard.

Demand for low-carbon intensity feedstocks has reduced exports of US tallow and increased imports such that imports exceeded exports in 2021. Imports of tallow from Australia have increased from 8,900 tonnes in 2020 to almost 76,000 tonnes in 2022.

Henry Krutil of Swift Trade Group presented a view of Asian markets, including China. Rapid growth in GDP in China and SE Asia, relative to the rest of the world, combined with 800 million people being lifted out of poverty in China in the 20th century, has fuelled demand for feed. Krutil traced the history of feed production from back-yard livestock production in 1980 to the development of the large-scale feed industry in 2000. With the estimated production of 400 million tonnes of feed in Asia in 2022 and 290 million tonnes in China alone, there are opportunities for Australian feed ingredients. However, these opportunities depend on user feedback to match products with customer expectations and position Australia as the origin of choice.

Johannes Adryanto of The SCENIA Group presented the Indonesian outlook. About 90% of feed production in Indonesia is aimed at poultry. Aquaculture accounts for about 6% of feed. Total feed production is about nineteen million metric tonnes per year, and about 530,000 tonnes of meat and bone meal and poultry by-product meal is imported for use in feeds. Feather meal and fish meal are also imported. Most of the imports are from the USA.



**Markets panel: Kent Swisher; Henry Krutil; Johannes Adryanto; Erick Romero**

A discussion about shipping dynamics followed the presentations about markets. The theme of sustainability featured heavily in the shipping presentation by Andrew Cumming of Stolt Tankers. Cumming started with his extra-curricular activity as a rugby referee but settled into his theme of carbon control and future fuels for use in shipping. He explained the price pressures that have arisen from changes in tallow shipping routes and the lack of availability of ships. These pressures come on top of the shipping industry's investments in sustainable fuels and operations designed to reduce carbon emissions.



**Amy Parker; Andrew Cummings; session Chair Andy Bennett**

Paul Feick and Amy Parker of Seatarra Ingredient Alliance have been regulars at ARA symposia as participants and speakers. Unfortunately, Feick could not attend the Symposium at the last minute, and Amy Parker delivered his talk. Pet food humanisation was the title of the talk, and the subject was pet owners' expectations.

Companion animals are seen as part of the human family and owners have the same expectations for quality, safety and reliability in food for their pets as they have for their own food. During COVID, pet ownership increased and the trend to what owners see as health-conscious purchases accelerated. Rendered products are still in the mix of pet food ingredients, but quality, reliability and traceability are high priorities for all pet food ingredients.



# SYMPOSIUM DAY 3

The third day of the Symposium was about future directions for Rendering. Gert Mulderij of Darling Ingredients stated that rendered products are back in feeds in the EU. This is because of the demand for sustainable feed ingredients rather than the years of arguments about the safety of rendered products.

He explained that Darling Ingredients is on the path of maximising the value of rendered products, and this may not mean following the course of traditional products. Mulderij said Darling processes about 15% of the world's animal waste streams. He said that the company pursues existing and new products, including biomedical solutions, health and nutrition for animals and people, biofuels, and bioenergy from the bio-digestion of wastes. New developments focus on sustainability, and two examples are biomedical collagen and gelatin made from hides and insect protein derived from black soldier flies.

Zhanying Zhang of the Queensland University of Technology continued the product development theme with his presentation about value-added products from animal keratin. An alternative to steam-hydrolysis of keratin to produce feather meal could be a mild alkaline treatment to produce peptides with antioxidant activity. These peptides could be used as high-value feed additives. Keratins from different animal sources have different structures, and a possible use of pig hair is to extract and hydrolyse keratin for use as hair-care products.

Mark Harrison, also from the Queensland University of Technology, gave an update on Aduro Biopolymers' Novatein. This topic has been discussed at previous symposia and refers to a plastic-like biopolymer derived from blood. The polymer is degradable and can be used to make abattoir hygiene aids, for example, weasand clips and oesophagus plugs. When rendered, Novatein breaks down and is not detectable. Weasand clips made from Novatein have been produced and used in trials in Australian and New Zealand abattoirs. Oesophagus plugs for beef processing are now being developed.

World Renderers Organization President Lucas Cypriano departed from the new product theme to discuss LEAP (livestock environmental assessment and performance). He explained the history of the UN's LEAP partnership, including the developments and achievements of the scheme in helping to establish methods to evaluate the carbon burden of livestock industries. Cypriano went on to explain the WRO's relationship with LEAP.

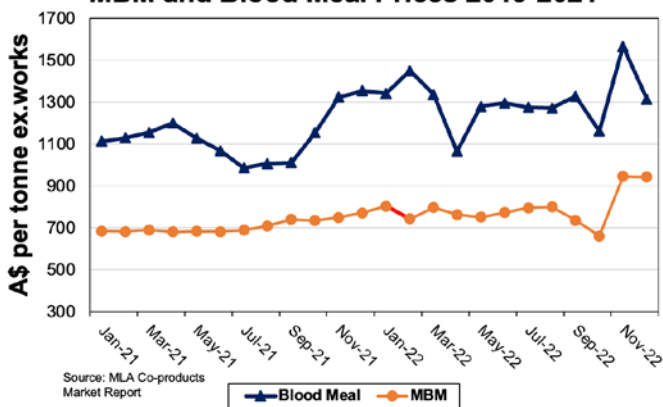
The WRO has gone from observer status to a paid-up private-sector partner. The WRO's future with LEAP is a little unclear because the director of LEAP is about to step down, and the replacement is unclear. Cypriano and WRO vice-president Damian Evans are preparing a report to help WRO members decide whether financial support of LEAP should continue. LEAP is about to release guidelines about how to account for methane in GHG emissions and guidelines for circular economies. These guidelines will be relevant to renderers.

In the final session of the Symposium, international experts, including Michael Smith, Chairman of the NARA; Lucas Cypriano of ABRA and President of the WRO; Sjors Beerendonk of Darling Ingredients and President of EFPRA; and Johannes Adryanto of SCENIA in Indonesia gave summaries of future directions for renderers in their respective regions.

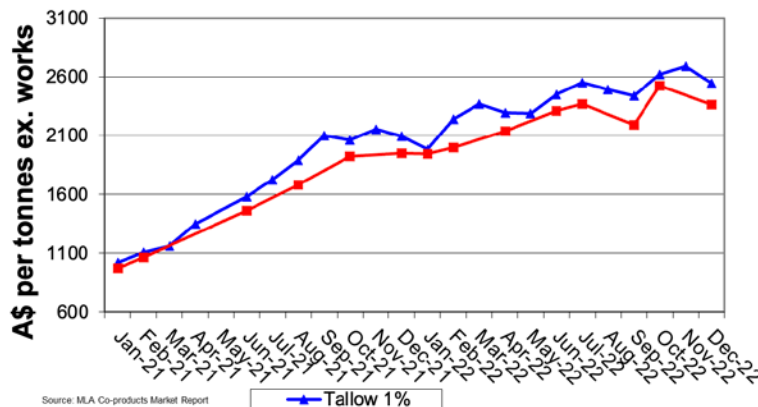
To wrap up the program, former ARA director Julius Rath and current director Michael Betar gave their inimitable summary of the events.

## PRICES

**MBM and Blood Meal Prices 2019-2021**



**Tallow Prices 2021-22**



# SYMPOSIUM SCENES



**Long-time ARA members Philip Lambeth, Symposium President; and Philip Cuff**



**Ben Robinson and Belinda Spiers of AUS-MEAT and Tim Juzefowicz enjoy a break**



**Mexican and Brazilian visitors Erick Romero and William Wattie**



**The highly popular Rendertech barista stand**



**The GrainCorp team make themselves visible**



**Siobhan Gibbons with Lynette and Graeme Banks OAM**

# SYMPOSIUM SCENES



**Peter Milzewski (centre) makes his point to George Schinard and Henning Haugaard**



**Marty Pope and Derek Henderson of Keith Engineering enjoy the Gala Dinner**



**Dr Kate Griffith, Jess Bloomfield and Toby Escott**



**Ben Barron and Greg Cotter of Talloman**



**Julius Rath and Michael Betar plan their symposium summary**



**MBL team Jamie Higgins; Gary Deutrom; Michaela Rock and George**