Rendering Circles

A newsletter produced by the Australian Renderers Association Inc.

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Presidents Message

There were some changes to the ARA executive at the AGM in July. I was confirmed as president after stepping in to fill the casual vacancy created when John Seletto retired. But don't worry. The appointment is only for a year. There will be another election for president in 2018. Harry Lee of Peerless, who also stepped into a casual vacancy, could not continue as a director because of pressures at work. Anthony Naticchia of NH Foods Australia was elected to the vacant position. Anthony adds to the abattoir renderers' representation on the ARA executive. We now have a good balance of independent and integrated renderers and traders on the executive. Thank you to Harry who filled in for a short time but made a valuable contribution.

The big story for this issue of Rendering Circles is the symposium. But before I get onto that subject, I want to say how sorry I am to hear of the passing Carro Cations. Carro stepped into the role of rendering supervisor at Thomas Foods only a couple of years ago but she certainly made an impact on the ARA. She became a champion of the ARA's drive to eliminate foreign matter and she introduced a raft of control measures at Thomas Foods. She gave a presentation to the ARA at the November 2016 meeting in Melbourne. She showed renderers what practical measures can be taken to control foreign matter at the source. I hope other abattoirs renderers follow her lead.

So what about the symposium? The attendance was great and there was a record number of sponsors and exhibitors. The program of speakers is always a strength of the ARA symposium and 2017 was no different.

What I thought worked particularly well was the way in which speakers complimented each other. We had our overall theme of "What tomorrow holds" but there were several mini-themes which speakers addressed from different points of view. For example, at the workshop on the day before the symposium, Peter Milzewski, Craig McKnight and Preben Alstrom all discussed advanced process control (APC). Peter's big-picture view of what APC can do for the business was complimented by specific examples of boiler control by Craig and Preben's examples of fine control of rendering equipment. I am already looking forward to the next symposium to find out what experiences there are of the practical use of APC.

In the symposium program we had both Thomas Mielke and Dave Eisenblast talking about the dilemma of high demand for fats and oils for both biofuel and food and feed use. Sustainability was addressed by keynote speaker David Bray; Mikel Duke and Roger Bektash. While they had some similarities they explored different aspects of sustainability. David Bray said that sustainability means different things to different people. Maybe it's time the ARA examines what sustainability means in the Australian rendering industry.

Of course my favourite was the foreign matter theme. Heidi Taylor put the renderers' problems into perspective when she talked about how much plastic and rubbish ends up in the oceans. She emphasised the importance of identifying sources of foreign matter as the pre-requisite to controlling the problem. I take this as confirmation that the ARA is on the right track in its foreign matter control initiatives.

Jeff Goodwin then gave us an update about what technologies are available to detect and remove foreign matter

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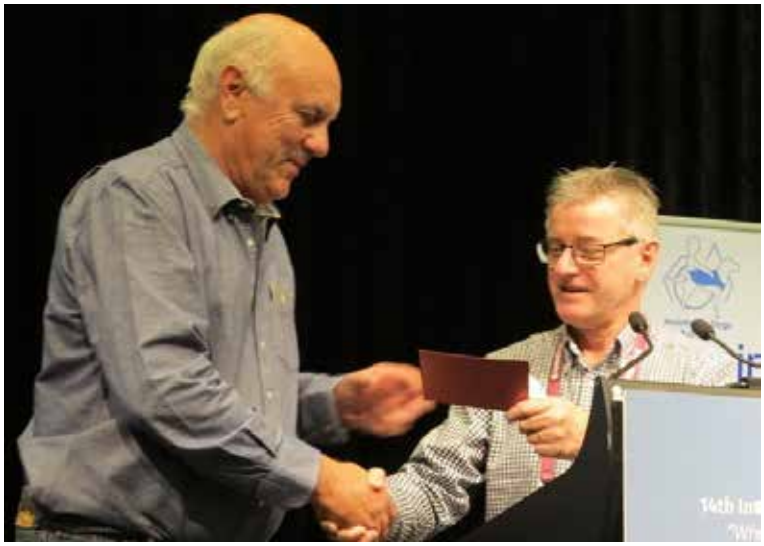
from rendered meals. There is more than one way to approach a problem and keeping plastic out of oceans is different from keeping foreign matter out of rendered products. But I thought these two talks worked well together.



President Andy Bennett receives an award from Vice-president Warren McLean in acknowledgement of his appointment as an honorary life member of the ARA

Another theme was what's happening in meat, poultry and aquaculture production as presented by five leaders of their respective industries. Tina Caparella of Render Magazine picked up that all speakers in this session referred to the importance of looking for opportunities for by-products in addition to rendering. She made this the lead in her story about the symposium. We are well aware that meat processors have to make good use of their by-products but I think that efficient rendering will be their best option for the bulk of by-products for a long time to come.

The content of presentations and the complimentary nature of the talks do not come about by accident. All speakers are provided with a briefing and this year they stuck to their briefings. This made the program come together with a nice flow of themes and topics.

I thought that every aspect of the symposium worked well and thanks are due to Philip Lambeth and the symposium committee and of course to Dennis King who makes it all happen.

There is one more point that I have to mention. After a long gestation period and a difficult birth, the code of practice review committee has produced a revised edition of the code. The revised code still has to be accepted by the membership but I think we have had one of the most comprehensive reviews since the code was introduced in 1994. The revised code will be presented to members at the November meeting.

Industry Workshop

An industry workshop was held on the day before the 2017 symposium. Tim Juzefowicz opened the workshop. He said that the purpose of the free workshop was to present practical topics to attract renderers who could not attend the whole symposium.

The workshop started out with a mini-theme of its own. Three speakers presented different aspects of adaptive or advanced process control. ARA director Peter Milzewski gave the first presentation. He spoke about the adaptive process controls being installed at the Australian Country Choice rendering plant.

Peter said that rendering contributes 5% of the value of products from cattle but consumes by far the largest amount of energy. It needs smart management and technology to control the amount of resources consumed by rendering. He also emphasised that the maximum revenues for rendered products come from consistent quality. The combined goals of sustained quality and least demand on energy are the objectives of adaptive process control. He said that for too long, control of rendering processes has relied on intuition. Adaptive process control provides responses to changes in processing conditions. This will result in smoother and more consistent control and avoid excursions that result in excess energy use

Peter Milzewski gives the first presentation about advanced process control at the industry workshop

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and interruptions in quality.

Peter was followed by Craig McKnight of Spirex Sarco. Craig discussed specific examples of the benefits of adaptive process control applied to boiler operations. Craig started with the old adage "you can't manage what you can't measure". The Spirex Sarco Boiler House Energy Manager collects data from a range of measurement sites and provides meaning to the data by showing where efficiencies can be achieved. Examples of the data that can be collected are boiler feed-water temperature; boiler fuel supply; TDS blowdown; steam output and boiler efficiency. These data are not only used to control boiler operations, they are also valuable to provide the backup data needed when applying for grants for energy management.

Preben Alstrom talks about advanced process control

Henning Haugaard of Haarslev introduced Preben Alstrom of CORE. Haarslev and CORE have got together to provide advanced process control to renderers. In Henning's introduction, he reminded everybody that at the 2015 symposium there was discussion about vacuum drying of rendered product at low temperature. Since that symposium, Haarslev has converted two atmospheric dryers to vacuum dryers. Henning has checked on the state of vacuum drying and reported that Haarslev has installed 22 vacuum dryers around the world, mostly for use with fish meal.

Preben Alstrom explained the adaptive controllers available for rendering operations. These process controllers use data from process

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history to predict changes in process parameters and identify the best adjustments. This leads to a stable process with reduced fluctuations in operating parameters. Examples of targets for control are temperature and time in dryers and cookers; torque and amps in presses; temperature in pre-heaters and solids content in evaporators.

Adaptive or advanced process controllers save energy, increase throughput and ensure consistent quality. These improvements result in a one-year payback for CORE adaptive controllers.

The presentations about adaptive or advanced process control point to a way forward to reduced costs and consistent quality of rendered products. Experiences of the benefits of adaptive process control will be an intriguing topic for the next symposium!

Equipment advances

Tricanters are another emerging trend in rendering. Presentations at previous symposia have used case studies to illustrate the quantity and value of product that can be recovered from effluents by tricanters. Eduardo Rivera of Peerless Foods has had considerable experience of tricanters to process DAF sludges and he gave his tips and tricks for managing performance.

Eduardo stressed the importance of the performance of the DAF to make sure the skimmed sludge is as concentrated as possible. The sludge can be conditioned by heating it before it is introduced to the tricanter. Spin tests will illustrate the effect of conditioning. Eduardo's tips for tricanter operation include making sure that the feed is homogeneous. This can be achieved by feeding from an agitated tank. He also warned against recycling the heavy liquid phase of the tricanter output to the start of the DAF system since this can result in a build up of solids in the DAF.

In answer to a question about tricanter capital cost and operating costs exceeding the cost of other disposal of DAF sludge, Eduardo said the he has been involved with the operation of six tricanters to treat DAF sludge and all had a pay-back period of less than one and a half years.

Use of air classifiers to fractionate meals into high and low ash-components was first discussed by Scott Newton at the fifth ARA symposium in 1999. Joe Muscolino of Sturtevant gave an update on the latest generation of air classifiers and what they can achieve. Joe pointed out that air classifiers achieve separation by particle size. The finer particles are associated with high protein and the coarse particles have more ash and less protein. Classifiers can be adjusted to give variable yields of high ash and low-ash fractions and Joe gave examples of what splits can be achieved. For example, with poultry meal a yield of 26% low-ash fraction with 4% increase in protein and 5% decrease in ash compared with the feed is typical.

To get the best performance out of a classifier, the temperature of the meal should be cool, preferable no more than 37°C. The meal should be fine and uniformly milled and screened. The product should be less than 14% fat. Hot and high-fat meals lead to fat smearing and build up in the machines.

Derek Henderson explains the unique feather plant at A.J. Bush & Sons

Derek Henderson of Keith Engineering described the unique feather plant installed at A.J. Bush and Sons (Manufactures). What sets this feather plant apart from others is that it is the first to combine continuous feather hydrolysing with a quad-pass airless dryer. Another first for the plant is the two 100m^3 live-bottom feather bins.

The drivers for this plant were the need for a high production rate combined with consistent quality product. The energy savings available from the airless dryer attracted government grants and this also supported the decision to invest in the new system.

Independent evaluations have confirmed the energy savings claimed for the system. In addition, product quality has been exceptional. Feather meal with 85% protein and 85% pepsin digestibility is produced consistently.

In the course of commissioning the plant Derek

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conducted systematic investigations of the effect of time and pressure on feather hydrolysation. He says that the best results are achieved using high pressure for a short time e.g. 450 kPa for about 4 minutes. Derek also gave his practical tips for judging whether feather meal is under or over-hydrolysed. Under-hydrolysed feathers result in visible quills and discernable feathers on the meal screen and over-hydrolysed feathers produce fatty-looking balls.

Isaias Vinaroz of Alfa Laval gave a highly animated presentation about evaporators. He described the AlfaVap waste-heat evaporators used to process stick water to produce protein concentrate and clean water streams. The AlfaVap uses plate heat exchangers to extract heat from cooker and dryer vapours. This makes the evaporator installation compact. The self-cleaning plates resist blocking and are easy to take apart and clean manually if necessary. The AlfaVap system can concentrate stick waters to over 40% solids.

Isaias Vinaroz gives his animated presentation about evaporators

Chris Hirscher of De Smet Rosedowns discussed how to get the best results out of presses. Rosedowns produces screw presses, particularly for the oilseed industry and also manufactures parts for Dupps and Haarslev presses. Rosedowns has presses operating in the oilseed industry in Australia. Chris explained that the effectiveness of Rosedowns presses comes from the stepped sections of the press which progressively apply and release pressure. Sections along the barrel of the press are choked to intermittently squeeze and relax pressure on the cake. A variable choke at the discharge is not necessary. With this approach the design is more adaptable to variations in the fat content of the feed.

Rosedowns presses also have design features intended to prevent material from rotating with the screw within the barrel of the press. These features are particularly intended to improve pressing of soft material. The first feature is to have long knife bars, particularly at the in-feed of the press. The longer knife bars are more tolerant of wear. The second feature is that the barrel bars are machined with an angle on the top surface. This mean the inside surface of the barrel has a saw-tooth profile which helps to grip the cake and prevent rotation.

Insect protein

While the previous speakers discussed emerging technologies that are with us now, Dirk Sindermann of GEA Westfalia looked even further ahead when he discussed commercial production of insect protein products. Of course insects have been food for humans and animals for millennia but large-scale farming of insects to produce a major protein source to feed the world is now gathering pace. Dirk said that about 2,000 (out of 2 million) species of insects are already eaten by people. However, there are considerable cultural differences around the world in people's attitude to using insects as a food source.

Discussions about protein sources always include the issue of feeding the planet by the year 2050 when the human population is expected to by nearly 10 billion. Whether insects will play a role is yet to be seen but the idea has advantages. For example, to produce one pound of protein food (i.e. meat), it takes 1 gallon of water in the case of insects and 2,000 gallons of water in the case of cattle.

There is potential for insects as animal feed including aquafeed, human food including additives, and bio-nutraceuticals. Rendering can be part of the process of exploiting insects in the food chain. Standard high-temperature and low-temperature rendering systems are both applicable for processing insect larvae to produce oil and protein meals.

OH&S

Occupational health and safety in the rendering industry is both a social and financial cost. Bill Linden of Craig Mostyn Group discussed these costs and how they are affected by company culture. He explained that Craig Mostyn has been on a 10-year journey to improve the bottom line through safety. "The bottom line" does not just mean financial performance. It also means company reputation, keeping people safe at work, and complying with regulations.

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Bill outlined three stages to the Craig Mostyn journey. The first stage was to work closely with medical providers to better understand workers compensation regulations in different states and to improve rehabilitation of people after injury. The next stage was to look at improving physical safety by conducting hazard assessments and changing plant design. This reduced the number and particularly the seriousness of injuries. Results were good and reductions in premiums were achieved. However there were still too many near-misses that could have been serious or even fatal.

Bill Linden discusses OH&S

The third stage of the journey was to look at culture. This means the whole company culture, not just the safety culture. For example, accidents caused by people rushing to meet production targets set by management are an issue for company culture. Similarly, failure to report and investigate safety incidents could occur through reluctance to upset the safety record. But safety can only be improved if people are free to report incidents openly without fear of reprisal. This third stage of the cultural changes has been the most difficult to achieve.

The industry workshop presented a range of practical and emerging technologies for use in the rendering industry. While some of the topics may not be applicable to all rendering operations, adaptive or advance process controls could point the way for improving overall rendering efficiency.

Glenn Barnett, Christine Clark, Paul Martin and Lucas Cypriano at the AusPac stand

Symposium Dinner & ARA Awards

Two hundred and thirty-five people registered for the symposium including 31 New Zealanders and 46 other overseas visitors. In addition, 159 people registered for the industry workshop on the day before the symposium. The number of registrations looks like a record. The previous record was 234 at the Sydney symposium in 2011 and the 2017 symposium has beaten that by one. There were 32 speakers including the workshop speakers.

The symposium dinner was the focus for the ARA awards for outstanding contributions. Andy Bennett started the awards segment of the dinner by acknowledging three winners of the outstanding achievement award at the ARA workshop on hygienic rendering. This award includes expenses paid attendance at the symposium and the winners in attendance were Ryan Dolley of JBS Longford, Ben Adam of E.C. Throsby and Nick Lawrance of A.J. Bush & Sons Riverstone.

Bob Mostyn receives the Ron Lyon award from Andy Bennett

Andy then presented the Ron Lyon award to Bob Mostyn. Bob is a long-time supporter of the ARA and had a personal connection with Ron Lyon. Bob employed Ron as a tallow trader at Craig Mostyn and in accepting the award he paid tribute to Ron and brought back some memories.

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Graeme Banks receives the Brian Bartlett Service to Industry award

Tim McCallum with his dog Roxy represented ADA at the symposium dinner. He entertained the audience with his outstanding singing and spoke about his own experiences after being disabled in a surfing accident. He explained how assistance dogs had helped him regain independence.

An auction and donations raised $16,780 for ADA. There were big contributions from Michael Betar and David Pinches. Michael re-bought the cricket bat he bought at the 2015 symposium. David was not to be outdone and bought a magnum of Grange donated by Craig Palmer.

Last man standing Steven Bradbury

The Brian Bartlett award for service to industry was presented to Graeme Banks. Graeme's service to the ARA is unquestioned but his association and friendship with Brian made the award particularly appropriate.

The third major award was made to Andy Bennett. Andy was made an honorary life member of the ARA. Andy's first involvement with the ARA was in 1991 when he attended the first workshop and symposium. Since then he has been president for 9 years in three separate terms. Previous president and current vice-president Warren Mclean paid tribute to Andy and presented him with a commemorative plaque.

The tradition of fund-raising at the dinner continued with the proceeds being donated to Assistance Dogs Australia.

Tim McCallum and Roxy entertain the audience

The after-dinner speaker was Olympic gold-medal winner Steven Bradbury. Steven is known as the "last man standing" for the way in which he won Australia's first winter Olympics gold medal. But nobody gets to the final of an Olympic event by accident. Steven gave an inspirational talk about the dedication and effort he put into his sport. His journey to Olympic gold included life-threatening injury in addition to the years of training and sacrifices.

Steven not only gave the after-dinner speech. He was happy to join in with the dinner events and took control of the charity auction.

14th Symposium Report - Day 1

Key-note speaker David Bray

The ringing of The Symposium Bell got the 14th symposium off to a more or less prompt start. David Bray, President of the SFMCA and a director if the IFIF gave the keynote address. One of David's themes, and a theme of the symposium was sustainability. He reminded everybody that sustainability means different things to different people. He also picked up the theme of increasing demand for animal protein as affluence grows around the world. He said that the stockfeed and rendering industries are needed to support this demand.

Sustainability is one of the three pillars of the SFMCA strategic plan. These pillars support the overall goal of safe feed. One of the SFMCA's major initiatives to improve the sustainability of the industry is the FeedSafe program. But the SFMCA cannot make non-members comply with FeedSafe. Feed producers outside the SFMCA are not obliged to comply with FeedSafe and could put the industry in jeopardy if they do not commit to production of safe feed. The SFMCA is in discussion with government about having quality-assurance applied to all feed production through a National Feed Standard.

The SFMCA's approach to sustainability follows IFIF initiatives. These initiatives include:

- environmental foot-printing and life cycle analysis of the feed sectors;
- investigation of specialty feed ingredients such as enzymes, organic acids and amino acids which can improve feed efficiency and reduce CO_2 emissions;
- a convergence project to bring feed regulations around the world together; and
- defining international feed-additive standards, particularly in relation to contaminants.

Other aspects of sustainability include security of ingredients supply; price security; genetics improvements; labour costs and availability and energy cost and security.

The vision of the Australian stock feed industry is to use resources efficiently, including ingredients, labour and energy; take care of the impact on the environment; collaborate at all levels including government; communicate the contribution of the industry; contribute to the development of criteria to define sustainability and to co-ordinate action towards more sustainable production.

Oil Markets

Thomas Mielke of Oil World demonstrated profound knowledge and understanding of international oil markets in his presentation about the outlook for tallow. He reminded renderers that palm oil is a driver for fats and oils prices worldwide. At the time of speaking, palm was at a $100 per tonne discount compared with soy oil and $300 per tonne discount to US edible tallow. However, based on historical relativities, US edible tallow is currently overpriced and Australian tallow is undervalued. Tallow prices in Australia have reached a level where demand should pick up and prices should increase.

Thomas Mielke gives his expert comments about oil prices

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In the next 12 months the target of the global market is to satisfy demand. The demand is mainly for food and use of fats and oils in biodiesel may have to be curbed. There are prospects for growth in demand of fats and oils for food and biodiesel. Prices have to be sufficient to encourage oil producers to invest and increase production. At the moment, if demand increases it cannot be satisfied because marginal producers are being driven out by low pricing.

Australian tallow prices are being pulled down by lower palm prices but this trend should not continue. Lack of labour in Malaysia is limiting production and the available production cannot be harvested.

In 2015-2016, production of all oils declined but demand continued to increase. Consequently stocks have been run down. With the prospect of palm production slowing down due to labour shortages, stocks will not be replenished and there will be less palm available for biofuel. Although 2016/17 has seen a bearish market for palm, which has affected Australian tallow, the slide in palm prices appears to have been arrested.

Thomas' prediction for Australian tallow prices is optimistic. He said that Australian tallow is undervalued and should recover. He also said that world demand cannot be satisfied without Australian tallow.

In answer to a question, Thomas said that discounting of Australian tallow is partly due to quality issues. He said that if lower quality tallow is mixed with high quality, the low quality brings the whole load down. Mixing different quality tallows is inhibiting traditional users from returning to the market.

Thomas Mielke was followed by another expert speaker; this time a specialist on biofuels. Dave Elsenblast of Renewable Energy Group (REG) explained what tomorrow holds for biofuels. REG has 11 plants in North America, 10 produce biodiesel and 1 produces renewable diesel. The location of these plants determines the choice of feed stocks.

California is the largest consumer of biodiesel by state due to its low-carbon fuel standard. California is expected to use 1 billion gallons of biomass biodiesel, about 28% of its total diesel use. Dave said that a lot of Australian tallow ends up in this market. There is a variable scale of rewards for using different low-carbon fuels and feed stocks. Used cooking oil gets most reward and tallow falls in the middle of the range.

Tom Coughlan of Wilmar Gavilon talks tallow with Ray Slade of Midfield Co-products

There is plenty of scope for growth in biofuels but Dave raised the same question as Thomas Mielke: "where is the feed stock coming from?" Tallow is a small fraction of biodiesel feed stock in the USA. This is partly due to the high cloud-point of tallow-based biodiesel. Cloud-point is not an issue for tallow-based renewable diesel. As production of renewable diesel increases more tallow could be used, assuming it is available.

Things to look for in the future are anti-dumping cases against Argentinean and Indonesian biodiesel and USA federal biodiesel tax credits. Anti-dumping cases are before the International Trade Commission and the Department of Commerce. Countervailing measures such as anti-dumping duties may be

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introduced to prevent imported biodiesel taking advantage of a subsidised market and to protect domestic producers. If this happens, imports could stop and additional feed stocks will be needed for domestic production.

A bill is before the house and senate to reinstate and reform the biodiesel tax credits. This bill provides for a domestic producer incentive and takes away the blender credit. It is not know what will happen with the federal biodiesel tax credit but the outcome could mean more pressure on imported biodiesel.

Technical session

Moving from markets to technical issues but staying with the sustainability theme, Professor Mikel Duke of Victoria University discussed membrane distillation and explained projects being conducted with Pinches Engineering.

Membrane distillation involves transferring vapour from a warm contaminated stream through a membrane to a cold clean-water stream. As explained by Mikel, the technique can covert waste heat into clean water. Potential applications for membrane distillation include further clean-up of effluent streams from DAF, covered anaerobic lagoons and waste-heat evaporators.

Bench-scale tests conducted with Pinches Engineering have looked at converting beef, poultry and fish stick-waters to separate clean and concentrated streams. The next stage of the project is to work with commercial sites to explore opportunities for water and energy savings at a pilot scale.

Tim Juzefowicz discusses membrane distillation with Mikel Duke

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Dr Kate Griffiths from the National Measurement Institute discussed the modern methods of species testing. She said that DNA testing of stock feeds for the presence of ruminant material started at NMI 16 years ago.

There is a range of tests available for identification of ruminant and other species in feeds. Microscopy is based on looking for physical tell-tale signs such as bones, feathers and fish scales. ELISA techniques use specific antibodies to detect species-specific antigens. There are challenges using ELISA with highly processed products including rendered products because most antigens are destroyed in the process. For the test to work, antibodies corresponding to heat-resistant antigens have to be raised. PCR (also called DNA testing) is the most sensitive of the species identification tests.

Kate explained that in a PCR test a DNA sequence is targeted and amplified until it is detectable. The key is to target DNA sequences that are unique to either all mammals, all ruminants or to a species, depending on what species or group is the target of the test.

Primers that initiate replication of a DNA sequence can be designed to match the chosen sequence. In theory, if one intact copy of the chosen sequence is present in a sample, the polymerase chain reaction initiated by the primer can replicate the sequence until it is detectable. In practice the duration and conditions of the PRC test are selected to limit the extent of replication. A detectable result is only reported if the replicated sequence is detectable under the conditions of the test. Nevertheless, the test is very sensitive.

The current threshold for reporting a positive result in rendered products equates to about 15 copies of the sequence in the original sample. The amount of the target sequence in a sample can be estimated but it is not possible to equate the estimated number of sequences to an amount tissue of the target species. This is because different tissues such as muscle, bone, and organs contain different amounts of DNA. The proportion of the tissues in a rendered product is variable and unknown so the amount of tissue that could contribute a specified amount of DNA in a sample cannot be calculated.

Market access

Dr Graham Clarke discusses how to get favourable market access agreements

The technical talks were followed by a presentation about international market access. Dr Graham Clarke, who now works with the Canadian Renderers Association but who spent most of his career as a government vet, discussed how to improve the outcomes of market-access negotiations.

Graham emphasised that market-access agreements must be government-to-government but he gave some advice about how industry can help to secure favourable agreements. He pointed out that there are four parties to market-access agreements. They are: the producer (i.e. the renderer); the importer or trader who wants the product; the government official in the exporting country and the government official in the importing country. There may also be political involvement.

He used his own background as a government official to illustrate that an official e.g. a vet, could have little or no knowledge about speciality products such as rendered products. Also, officials tend to move on and be replaced. It is therefore important for renderers to help the government officials understand rendering.

He said overseas auditors will want to see that vets or government supervisors on-site at production facilities know what is going on. It is therefore important to educate local officials so that they understand the renderer's point of view. In Canada, education of bureaucrats includes value-chain round tables; dialogue with industry associations; social media and publications and company web sites.

Graham highlighted the example of where one country may have outcome-based regulations and another has prescriptive regulations. In these cases it is important to compare regulations and find the holes that renderers could fall into. Then document how these holes can be filled on an establishment basis.

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This exercise may be time consuming but it is worth the effort. Also, in preparing for audits by prospective importing countries his advice was to anticipate the concerns of auditors; have presentations ready and remember that hospitality is important.

In conclusion Graham said that dealing with international bureaucracy presents complex issues that are time consuming and frustrating. No doubt ARA members heartily agree with this comment.

In the final talk of the first day of the symposium the sustainability theme was revisited by Dr Roger Becktash of PFMIA and GAPFA. In a similar vein to the keynote address by David Bray, Roger said that the priority of the international and local pet-food industries is to produce safe products in a sustainable way. He also echoed David Bray's emphasis on the SFMCA's SafeFeed program. He explained that the Australian Standard for Manufacturing and Marketing of Pet Food plays an important role in the production of safe pet foods. He said that the Standard is a pre-requisite to exporting.

Roger Bektash talks about pets and owners

Roger talked about the relationship between pets and owners and how this relationship leads to attention to quality transparency and safety. At the top of the quality issues is foreign material such as plastic in fresh pet-food meats and rendered meals. Species integrity is increasingly important because it impacts on export certification, cultural expectations, labelling, traceability and adulteration. Microbial safety is also important because of raised awareness of microbial contamination being transferred around the home. This issue applies particularly to Salmonella in tallow and palatants that coat dry pet-food because they are applied after the last microbial kill step. The pet-food industry needs partners who understand these issues.

People and Places

Henning Haugaard, General Manager of Haarslev Oceania office in New Zealand has been appointed Sales Director of Haarslev Industries and has returned to Denmark. Henning has been with Haarslev in New Zealand for three and a half years and has become well known to the Australian Rendering community. In his position back in Denmark Henning will have responsibility for sales in Europe, Russia, Africa, Asia and the Pacific.


Henning Haugaard seals a deal with John Hart of John Dee at the symposium

Trish Ryder of AUS-MEAT and Michelle Evans at the Rendering By-products Australia symposium stand

Mark Pope has left Keith Engineering to set up a rendering-consulting business. Mark was at Keith Engineering for over ten years as operations manager and helped many renderers to improve their processing efficiency. His new business is Rendering By-products Australia and is based in Melbourne. Mark's first job in his new role was to man his Rendering By-products Australia stand at the symposium with his partner Michelle.

Flottweg Sales Manager Mark Player says that Flottweg is launching a re-entry into the Australian and New Zealand rendering market. He says that Flottweg is a reputable German manufacturer of high-speed centrifugal separation equipment. The company is over 100 years old and originally manufactured aircraft parts and motorcycles before developing its first decanter centrifuge in the 1950's. The focus of the company has been in this specialised area ever since. Continued investment in R&D has resulted in many unique innovations and features which keep Flottweg at the forefront of the industry.

Flottweg Australia Pty. Ltd. is located in Sydney and has sold and serviced machines in Australia & New Zealand for nearly 20 years. The company has a fleet of rental equipment and has recently imported a new Z4E Tricanter® centrifuge to offer for rental or sale to customers, ex-stock Sydney. For more information or to discuss your specific needs, contact Mr. Mark Player on 0430 296 534, or mark.flottweg@gmail.com

14th Symposium Report - Day 2

Meat industry forum

Meat industry panel: Peter Milzewski, Chairman;
Allan McCallum; Linchon Hawkes; Michael Nolan; Roger Fletcher and Graeme Dillon

The second day of the symposium started with presentations from a panel of leaders of the meat, poultry and aquaculture industries. These speakers expressed a common theme of the importance of rendering to the cash-flow and profitability of their businesses but they all said that they are constantly on the look-out for alternative uses of by-products. They also all remarked on the importance of value-adding to both edible products and by-products to improve the competitive position.

Pork

Linchon Hawkes of SunPork Group started with statistics about pork production and consumption. He also referred to the fire and recovery that disrupted operations at SunPork's Swickers abattoir.

Linchon outlined some of the developments the pork industry is pursuing. The industry is differentiating pork from other proteins by emphasising health benefits, animal welfare and carbon awareness. It is also looking at increasing exports, particularly to China where the Australian clean and green image is an advantage.

The industry is focused on value-adding and product innovation to keep ahead of imported pork. Imported pork is a challenge for the industry. Costs of production in Australia are high compared with the very large-scale production in the USA, Canada, Denmark and the Netherlands. To reduce costs in Australia the industry has to increase production per sow and reduce input costs including feed.

Linchon said there are significant opportunities to reduce feed costs. He discussed the example of food waste. It is estimated that there is 460,000 tonnes of food waste as dry matter. If this could be harnessed it could account for 40% of the pork industry's feed requirements. While there are hurdles to overcome before food waste could be considered as a pig-feed ingredient, Linchon proposed that the rendering industry could provide some of the solutions to overcome these hurdles.

Chicken

Graham Dillon of Inghams presented the poultry industry perspective. He reminded the audience that poultry has gone from a special occasion food to the most affordable animal protein in Australia. This has been achieved through genetics and selective breeding; feed and nutrition research and investment in industrialization of the supply chain.

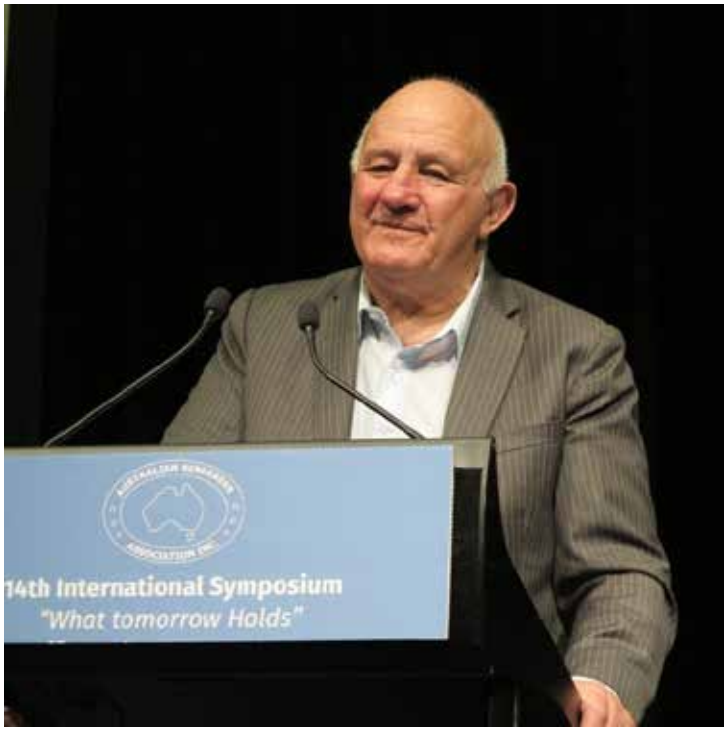
Inghams has a focus on growth in value-added products and further processing. Rendered products contribute to the value of further-processed products. But in a comparison of potential uses of poultry non-carcase parts, Graham illustrated that yields and returns for further-processed products

Continued Page 16

are better when material is directed to non-rendering uses such as pet food and palatants. There is also demand for offal and non carcase parts for human consumption and the amount of material being directed to rendering is reducing.

Sheep

Roger Fletcher of Fletcher International gave his outlook for the sheep-meats industry. He confirmed that the sheep industry is going in the opposite direction to pigs and poultry and the national flock has gone from a high of 170 million to 70 million. Much of this is due to the changing fortunes of the wool industry. The flock is now aimed at meat production rather then wool production. The industry has become more efficient with changes in breeding stock and a dramatic improvement in lambing rates. Drought still has a huge influence on the lamb industry and feed-lotting has to increase to counter the effects of drought.



Roger Fletcher discusses the sheep-meat industry

In the domestic market, lamb faces tough competition from pork and poultry and the sheep-meat industry has diversified into exports. The export drive is mainly to China but there is a disadvantage compared with New Zealand because there are no tariffs on NZ lamb into China.

The challenges for the industry are: managing transport from inland processing plants although shipping has improved and exporters can ship all year; environmental issues and energy supply and costs.

In terms of dealing with the by-products of slaughtering, Roger said that rendered products are an important contributor to the business but he looks at the optimum use of by-products on a daily basis. The pet-food industry is particularly important as a customer of by-products but wants top quality.

The outlook for the industry is that the national flock will grow from 70 million and farms should prepare for the inevitable droughts and not depend on government hand outs.


Meat Industry leaders Mike Nolan and John Hart

Beef

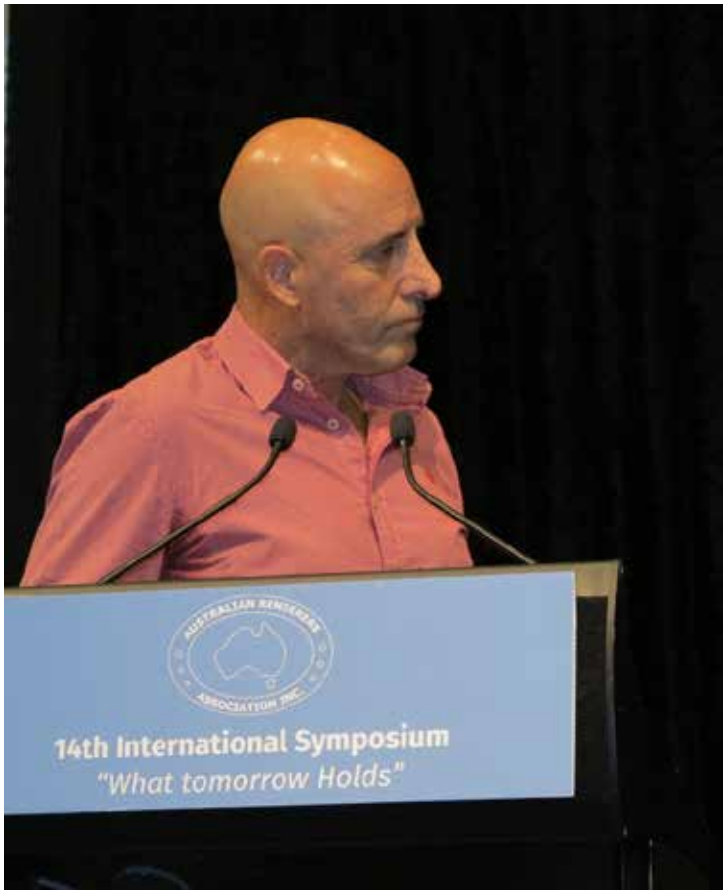
Michael Nolan of Nolan Meats explored current and emerging trends in the beef industry. He said that the industry is in a herd-rebuilding phase resulting in reduced kills. This is offset by increasing carcase weights from animals coming through feed lots. It will take time to get back to normal production and with no money around at the moment, the risk is that people and skills will be lost from the industry.

Michael compared the current market with his days as a retail butcher and said that these days customers are looking at value for a meal rather then the price per kg of meat. This means value adding to retail products such as additional slicing, trimming and packaging so that the customer does not see any waste. He also emphasised that customers will not tolerate contaminants.

The beef industry cannot compete on price with other proteins and value adding is important to differentiate products from competition. Michael discussed value adding to edible products but said that value adding also means maximising the amount of products for edible use and minimizing what goes to rendering.

Aquaculture

The view from the aquaculture industry was presented by Allan McCallum of Tassal. Allan summarised the Tassal business as operating salmon hatcheries, sea farming, processing and value adding. Tassal has bought De Costi and is now expanding into seafood. Tassal has Aquaculture Stewardship Council (ASC) Continued Page 17



Michael Betar moderates the meat industry panel discussions

sustainability certification at all its farms and is the first company in the world to achieve this.

The growth in world population means growth in demand for food. The supply of wild-caught seafood is decreasing or at best stable. This has led to aquaculture becoming the fastest growing sector of food production. Farmed salmon is now the most consumed seafood species world-wide and consumption has doubled since 2004.

Allan discussed some of the issues related to the rendering plant commissioned by Tassal in 2015. Total input to the plant is about 10,000 tonnes per year and the out put is 60% oil and 40% fish meal. The amount of material for rendering is under pressure because there is increased demand for heads and bellies, deboning machines are used to strip as much meat as possible from bones, improved farming techniques have resulted in reduced mortalities and R&D has led to extraction of omega-3 fatty acids. All these factors have reduced the availability of by-products for rendering.

On the upside, growth in value-adding means that less product is distributed as whole fish and more material for rendering is available from central processing facilities. Although there is a trend to reduce the amount of aquaculture by-products that go to rendering per kg of farmed fish, the increase in production of fish will keep the overall amount of material for rendering stable or may even increase the volume.

14th Symposium Report - Day 3

Plastics and foreign matter

Previous speakers Thomas Mielke and Roger Bektash both alluded to quality problems of polyethylene in tallow and plastics in protein meals. But rendered products are not the only victims of plastics. Heidi Taylor of Tangaroa Blue Foundation talked about the problem of the vast amounts of plastic in the oceans. She said that there are up to 40,000 pieces of plastic per km^2 of ocean and this equates to 7 million tonnes per year of plastic getting into the oceans. Eight thousand species of marine life are affected.

Heidi Taylor talks about plastics in the oceans

Heidi says that if all we do is clean up, that's all we'll ever do. She explained some of the initiatives being taken to control plastic and other rubbish in addition to beach clean ups. One of theses initiatives, and one which also applies to rendering, is to understand the sources of plastic. To help do this, there are 2,287 coastal and river sites around Australia that are monitored to find out what plastics are turning up and where they come from. Observations at these sites are logged and there are 8 million items on Tangaroa Blue's Australian Marine Debris Initiative data base.

Some of the investigations of the sources of plastics provide useful information. For example blue strapping tape is a problem on beaches from Albany to Geraldton. In 2011 the Department of Fisheries Continued Page 18

banned the use of blue strapping-tape on fishing vessels and the amount of this material on beaches has dropped from 6 pieces per km of beach to 1 piece per km in 2015-2016.

Another example was when 500 Vietnamese water bottles turned up on a Cape York beach. Investigations by Border Security identified the source as a fleet of Vietnamese vessels fishing illegally in the Coral Sea. Collecting and recording rubbish on beaches also identified plastic resin pellets as major source of contamination. Discussions with plastic manufactures resulted in programs being introduced to stop losses of pellets.

Heidi had a message for renderers about the use of biodegradable or compostable material as opposed to degradable material which breaks down but does not go away. Her discussions about tracing sources of plastic endorse the ARA's approach of identifying and recording foreign matter in raw material so that suppliers can be educated.

Jeff Goodwin of DKSH took a practical approach to foreign matter removal at rendering plants. Jeff summarised some of the existing technologies used to detect and remove ferrous and nonferrous metals, stainless steel and plastics from rendered products. Magnets are commonly used to remove ferrous metals and eddy-current separators are good for detecting aluminium and alloys. Stainless steel can be removed with very powerful 11,000 gauss magnets. Plastic can be detected by near infra red (NIR) detectors.

Jeff showed examples of stainless steel recovered from meal by a stainless steel detector and plastic removed by a combined NIR and electro-magnet detector. He said that plastic could be detected and removed before milling but it is more difficult to detect plastics after meal has been milled.

International issues

Marty Covert, organizer of the NRA conventions and Tina Caparella, editor of Render magazine at the symposium reception

Christine Wang of China Feed Online gave a comprehensive run down on licensing and registrations required for the Chinese market.

The Ministry of Agriculture licence refers to products. Christine explained the application process. She said that a licence is valid for 5 years and preparation to renew the licence must start six to ten months before expiry.

Apart from obtaining MOA licences, individual rendering establishments must be approved and registered by the AQSIQ. Christine pointed out that unlike the MOA licence, AQSIQ registration cannot be initiated by manufacturers. Registration must be requested by the exporting authority i.e. the Department of Agriculture and Water Resources. AQSIQ will send a questionnaire to the importing authority and conduct a risk assessment of the exporting country. A specialist group will then be sent to the exporting country and go to each plant that wants registrations. Plants that are approved by the AQSIQ will be listed for export to China.

One of the differences between MOA licensing and AQSIQ registration that renderers should remember is that when AQSIQ listing of a plant expires it is still possible to trade pending renewal of the listing. If an MOA licence expires, the product that the licence refers to cannot be imported into China.

Fernando Mendizabal was unable to attend the symposium but his paper about rendering in Mexico was delivered with great aplomb by Lucas Cypriano.

Energy is a major issue for Mexican renderers. Electricity production is about one fifth of Australian production per head of population. Where Fernando lives there are several power cuts a week. This creates havoc with the production and quality of rendered products. Natural gas is the cheapest energy source but the infra-structure cannot supply natural gas to meet demand.

Meat production has grown rapidly in Mexico. In the last 30 years, meat production has increased by 150% compared with population growth of 67%. Some of this growth is imports and there is not necessarily any more raw material available for rendering. Also, in Mexico only 27% of live weight of slaughtered

Continued Page 19

Lucas Cypriano gives Fernando Mendizabal's presentation

cattle is rendered compared with 42% in the EU. Based on slaughterings, annual production of rendered products is 675,000 tonnes of protein meals and 224,000 tonnes of fats.

The Mexican rendering industry is regulated by a range of government agencies covering agriculture, trade, labour and social welfare, environment and health. Regulations for rendering ruminant material are separate from regulations for rendering non-ruminants and the two types of rendering are kept separate. Mexico has BSE-negligible risk status and does not restrict the use of SRM except at export registered abattoirs. Brains and spinal cord are commonly used as human food.

Rendered material must be processed at a minimum of 80°C for 30 minutes. Also, the final moisture content must be less than 10%. Animal feed regulations include that all ingredients must be registered, ruminant material may not be fed to ruminants, all ingredient must be declared on labels and ingredients must be traceable.

There is investment in new technology in the Mexican rendering industry, particularly to reduce energy costs to help cope with limited energy supply. Renderers are committed to a target of using 20% renewable energy by 2020.

WRO Meeting chaired by Dr Martin Alm with 2nd Vice-president Bruce Rountree and Tina Caparella

At the final session of the symposium, speakers gave brief updates of rendering around the world. Dr Martin Alm gave the view from the EU. He said that definitions of SRM have changed resulting in less volume of SRM but as yet this has not affected the quantities of categories 1, 2 and 3 material for rendering. Category 1 meat and bone meal is being incinerated in cement kilns and power stations while category 2 MBM is used as fertilizer. Category 1 and 2 fats are being used to make biodiesel or as boiler fuel on site at rendering plants.

The main issue for the future is that there might be a partial lift on the ban on processed animal protein in animal feeds. Porcine PAP might be permitted in poultry feed and poultry PAP in pig feeds. In preparation, EFPRA is conducting a major feeding trial to determine the digestibilities of these materials. This updated information is needed because PAPs have not been used in animal feeds for 17 years.

Tim Guzek, Chairman of the National Renderers Association explained the current situation in the USA. He said that existing issues facing renderers include the new Food Safety Modernisation Act. The act includes a feed regulation which impacts on the rendering industry.

Emerging issues include a trend to vegetarian diets for poultry and pet food and food waste programs. Tim showed some examples of poultry companies promoting meat production based on vegetarian diets. He also said that there is federal funding for large-scale composting of food waste and food-to-energy facilities. California and other states also have programs to support food waste. These programs could threaten supplies of raw material for rendering.

Continued Page 20

Despite some issues of concern Tim said that the future for rendered products is good. North America Free Trade Agreement renegotiations have increased trade opportunities. The USA produces 9 million tonnes of rendered products through recycling of animal material. This reduces GHG emissions to the benefit of society and supports the growth of animal agriculture.

Lucas Cypriano introduced the Brazilian rendering industry. About 12 million tonnes of raw material are rendered per year (compared with Australia's 3 million tonnes). Total production of processed animal proteins is about 3.3 million tonnes. About 96% is used domestically in animal feeds and pet food. About 2 million tonnes of rendered animal fats are produced, most of it going to domestic biodiesel and animal feed.

Lucas said that the Brazilian rendering market is positive and stable. He then discussed the wider Brazilian economy. He said that most indicators had improved. There are signs of a fall in unemployment and it looks like the Brazilian economic crisis is at an end.

Bruce Rountree gave an update of the New Zealand rendering industry. The export profile is similar to Australia's with Indonesia the main market for meat and bone meal and Singapore the main market for tallow. A difference between the New Zealand and Australian industries is that there is a trend to independent rendering in New Zealand. Meat companies operate 15 rendering plants and the independent renderers have 11 plants. Bruce split the challenges for the industry into processing and ethical challenges. The processing challenges include the familiar issues of health and safety, Salmonella, foreign matter and species verification. The ethical challenges also include species verification along with sustainability, animal welfare and environmental issues.

George Schinard discussed the Australian rendering industry. He gave details of meat production, production of rendered products and markets for rendered products. He pointed out that cattle slaughter numbers were down in 2016 and 2017 and that the beef industry is going through a herd rebuilding phase. This has reduced the amount of raw material for rendering and production of rendered products is down compared with previous years. At the same time, production costs, particularly energy costs, have been increasing. George said that the challenges for the Australian industry are market access, foreign matter, energy costs and species verification.

Market Access

There has been an adjustment of staff at the Department of Agriculture and Water Resources. Rob Atkinson who was acting director of the Food and Animal By-products Section of the Export Standards Branch is temporarily acting director in meat market access. Slava Zeman continues to be director of the Food and Animal By-products section and Alex McLaran is assistant director with responsibility for inedible products. James Hunt is the policy officer in the section. He works on the day-to day issues related to rendered products and hides and skins and he keeps in touch with the industry.

Alex McLaran and Rob Atkinson of the DAWR's Food and Animal By-products section

Edible tallow to China is still on the agenda and further information has been sent to China. Access for poultry products to China and the HPAI issue is also a priority. The Chinese AQSIQ has accepted an invitation to assess Australia's HPAI management. It is expected that there will be a systems audit of Australia's preparedness to identify and control outbreaks of HPAI in October. This assessment is not only related to rendered products but access for poultry rendered products is an objective.

A separate AQSIQ audit aimed at listing rendering plants for export to China is expected. It is not clear if this will be a systems audit or will involve individual plants. A time has not been agreed but the ARA is preparing for the audit by conducting training workshops.

Indonesia may also conduct audits of establishments seeking listing. Indonesian has indicated that the 8 establishments that have requested listing may be audited. Other listed establishments may also be reviewed. However, Indonesia also pointed out that 11 listed establishments have not exported in 2015-2017 and has proposed delisting these establishments.

Indonesia has introduced a regulation about payment for audits. The department has identified several issues with this regulation. The USA and New Zealand have also come up against major obstacles with payments. The department is working with Indonesia to resolve these issues.

The department has provided a submission about rendered meals, edible and inedible tallow to Mexico. There is interest in this trade from exporters and importers and the department will be following up the submission.

The department has sought to re-establish access for rendered meals to Fiji. Fiji has accepted revised export certificates for mammalian rendered meals. Poultry products are not included. Since then the ARA has requested a change to the health certificate and the department is revising health certificates to provide to the Biosecurity Agency of Fiji.

The department has provided sample health certification and information about Australian rendering to Sri Lanka. Sri Lanka has indicated that it is willing to negotiate expanded certification of meals to include poultry meal when there is interest from importers to import this product.

Ukraine has indicated that it is willing to accept Australian rendered meals provided that comply with relevant regulations. The department is assessing the regulations and will develop revised certification for Ukraine's consideration.

Workshop

The ARA's thirty-seventh workshop on hygienic rendering was held in July. The workshop was attended by 24 people and all 24 participants were accredited. This brings the number of accredited people to 950.

The outstanding achiever at the workshop was Nick Lawrance of A.J. Bush & Sons (Manufactures) at Riverstone. Workshop leaders Trish Ryder and Glen Braddock nominated Nick based on his outstanding work ethic, willingness

Workshop participants at A.J. Bush & Sons (Manufactures) Beaudesert plant

to participate in group activities and teamwork. Nick's award is a complimentary registration and travel expenses to attend the 2017 symposium. Although Nick was singled out, Trish said that all participants worked hard and achieved high marks in the assessment. She said that selecting the outstanding achiever award was particularly difficult at this workshop and there were many worthy candidates.

Scott Kapernick and Karen Blancaflor of Teys Australia in the micro lab

Trish said that all participants did well and it was great to see 3 females enrolled in the training. Feedback sheets at the end of the workshop indicated that people enjoyed the workshop and everyone learned something to take back to their workplace. The enthusiasm was great to see.

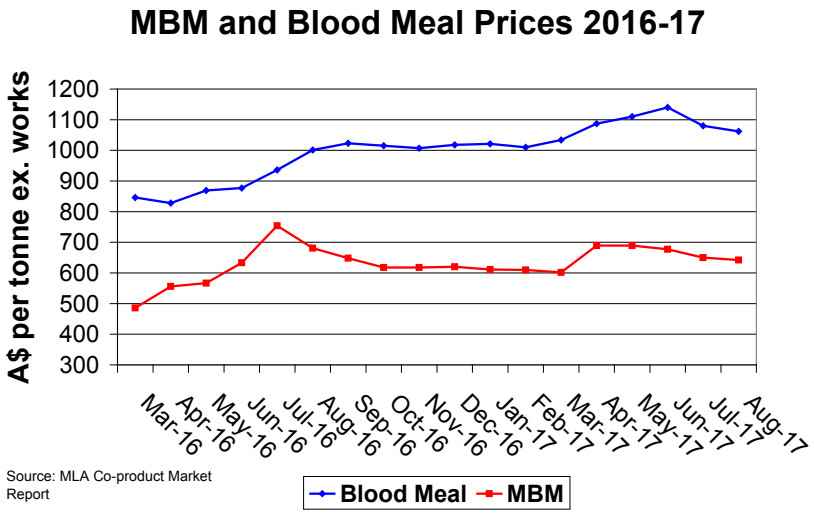
Bob Englebright, the principal technical officer at UQ Gatton has retired. Bob has been preparing the microbiological experiments since the workshop moved to Gatton in 2011. Dr Mel Schneemilch is now helping Trish with the lab work. Trish says that Bob's retirement is a loss to the workshop but Dr Mel took over with no hiccups.

Keith Engineering, Kemin Australia, GrainCorp Oils, Alfa Laval and A.J. Bush & Sons (Manufactures) all supported the workshop. Derek Henderson of Keith Engineering gave his presentation about how to get the best out a press and also discussed cooking conditions. Keith Engineering also sponsored the dinner.

Rick Carter of Kemin explained how to use Salmonella inhibitors and anti-oxidants. Rick also supplied satchels for the delegates. Anne Watling of GrainCorp returned to give her presentation about tallow and to demonstrate how to do a free fatty acid test. Douglas Wood of Alfa Laval gave a presentation about the intricacies of centrifuges and how to get the best efficiency out of tallow separators and decanters.

A.J. Bush and Sons again generously hosted a visit to the Beaudesert plant.

Meat meal prices



Source: MLA Co-product Market Report

Prices for domestic and export meat and bone meal have been weakening for the last few months. The price of soybean meal has been falling and feed millers have been reducing the amount of meat and bone meal in rations in favour of cheaper soy. Reduced usage of MBM by export customers has resulted in a build up of carry-over stock and export prices for September are lower again.

In addition, high beef and pork kills in the USA have increased production. As a result CNF offers for US meal are more competitive than for Australian product.

It is a similar story in the domestic market with MBM being replaced by cheaper soy .

Soy meal has been falling by about $20 per tonne a month for the last few months. MBM has followed but the increasing value of the AUD has further decreased DCT prices and returns to producers. The soy complex remains bearish with big crops expected from the USA and South America.

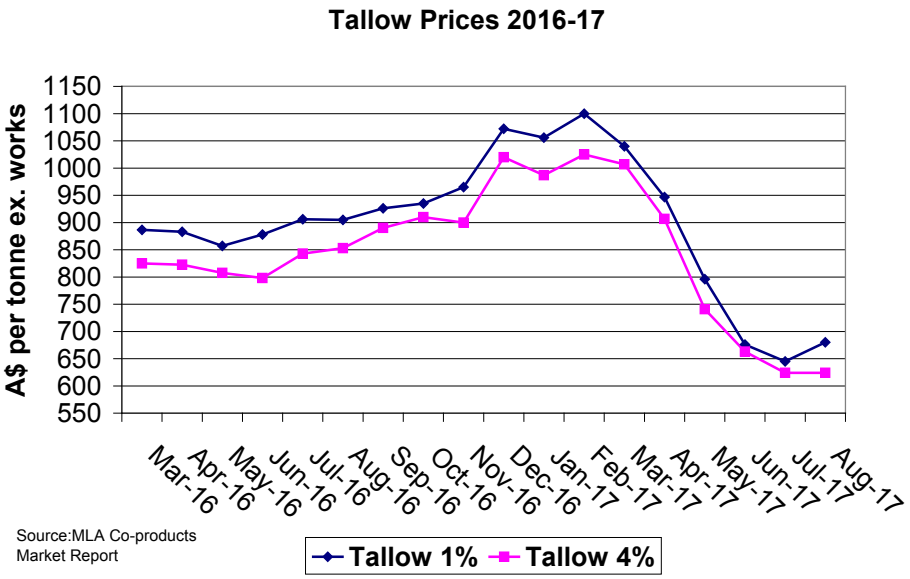
Supplies of Australian MBM have been weak due to low kills and this has propped up prices to some extent. Kills are expected to pick up in the spring and summer months and there will be more MBM available. Values are expected to stay the same at best and possibly fall further.

Blood meal prices remain high, if a little weaker. Most blood meal is going for domestic use in aquaculture feeds. Kills in New Zealand have been low in the winter months and there has been little blood meal available for export. This has increased demand for Australian blood meal. As production picks up in Australia and New Zealand, blood meal prices may weaken.

MBM market advice courtesy of George Schinard, Wilmar Gavilon.

Tallow prices

"You are on the right track. You reject abstract theories and have little regard for abundance and low prices. You concern yourselves mainly with the fate of the producer. You wish to free him from foreign competition, that is, to reserve the domestic market for domestic industry".



Source:MLA Co-products Market Report

The facetious opening remarks of Frédéric Bastiat's famous Candlestick Maker's Petition* seem particularly apt at the moment.

At the July symposium, Dave Elsenblast advised Australian renderers to keep an eye on anti-dumping cases in the USA against Argentinean and Indonesian biodiesel. In late August the USA Commerce Department ruled that Argentina and Indonesia subsidize their biodiesel industries and preliminary import duties have been imposed. This will significantly affect Argentinean exports to the USA but may not have much of an impact on Indonesian biodiesel since Indonesia has not been exporting to the USA in 2017.

There should be a positive effect on domestic production of biodiesel in the USA. Exports of biodiesel from Argentina increased by nearly 62% in 2017 with 572,000 tonnes shipped in the first half of 2017. US biodiesel plants have been operating at about 60% capacity in 2017 compared with 70% capacity in 2016. If Argentinean imports are stopped or slowed, domestic production should increase to contribute to renewable fuel mandates. This will, in due course, increase demand for feed stock.

However, another destination another determination. In early September the EU Commission voted to significantly reduce import duties on Argentinean biodiesel. In general, import duties of 22 to 25% whose imposition commenced in November 2013 are due to be reduced to 4% to 8%. Therefore, Argentinean soy biodiesel is likely to flow to Europe instead of the USA. EU import duties on Indonesia palm biodiesel are also under review and could be reduced.

Australian tallow prices steadied in August and showed further improvement of $50 to $100 per tonne, depending on the grade, in September. The main influence on prices has been an increase in the prices of palm oil. Discounts for the forward months for palm referred to in the last issue of Rendering Circles have run their course. Pricing is relatively flat for the next nine months.

For a lengthy period it has been predicted that the production of palm oil in Malaysia and Indonesia will pick up over the course of 2017 as the plantations recover from El Nino. However the observed improvements have been disappointing and current indications suggests a significant boost to production is not a sure thing. Palm prices have adjusted accordingly. For example, July palm stearine was US$610 per tonne FOB Malaysia and has risen to US$ 705 per tonne FOB in September. Australian tallow prices have duly benefitted and are currently trading at close to traditional pricing levels relative to palm stearine.

Australian tallow is moving to many countries. Singapore has returned to buying some Australian tallow. The emphasis on quality assurance and ensuring reliable and high production standards of tallow becomes more important every year. Confidence in the predictability and stability of individual tallow productions remains paramount in retaining broad market access.

**A Petition from the Manufacturers of Candles, Tapers, Lanterns, Sticks, Street Lamps, Snuffers, and Extinguishers, and from Producers of Tallow, Oil, Resin, Alcohol, and generally everything connected with Lighting . To the Honourable Members of the Chamber of Deputies. Frédéric Bastiat (1845).*

Tallow market commentary was prepared with assistance of Damian Evans, Colyer Fehr.

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