THE FIFTH QUARTER

from STEVE'S desk

Stuart – The High Flying Bioactives Man

Stuart Quigley has recently joined Meat and Livestock Australia as Program Manager for High Value Bioactives. Prior to joining MLA Stuart has had extensive experience in the dairy industry where he was involved in research and development and commercialisation of high value bioactives from dairy product streams.

MLA's new High Value Bioactives Program is designed to assist the industry in developing new, novel high value bioactives extracted from red meat and co-products.

There is a convergence of factors driving this program:

- Bioactives find many applications in functional foods, nutraceutical and pharmaceutical markets. World wide these markets are growing rapidly presenting increasing opportunities for access to them.
- Australia's clean and green image provides a strong advantage over other countries when it comes to sourcing bioactives from bovine and ovine sources.

Stuart is very keen to speak with industry representatives to help develop new products and supply chains. If you would like to learn more about the High Value Bioactives Program Stuart can be contacted:

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Traceability and the Red Meat Industry

Throughout the meat industry there has been a growing need for producers and processors to provide evidence of traceability of co-products across the whole supply chain. Consumers worldwide now have the expectation that retailers are able to identify the origin of the product. The rapid and total adoption of EAN.UCC technology has benefits and huge cost savings that can be achieved by better supply chain management, both at an individual company level and at an industry level.

An EAN is an international article number. It is a universal identification number that allows any product to be uniquely referred to anywhere in the world. EANs are both printed on the product and coded in a machine-readable bar code. As well as providing a unique identification number for products, EANs are also used to identify other 'units of information' that are necessary to exchange during trade, such as delivery locations.

Australian Country Choice (ACC) in Brisbane and MLA have developed a system for tracing co-products by using EAN numbering, bar coding and an Electronic Data Interchange (EDI) system.

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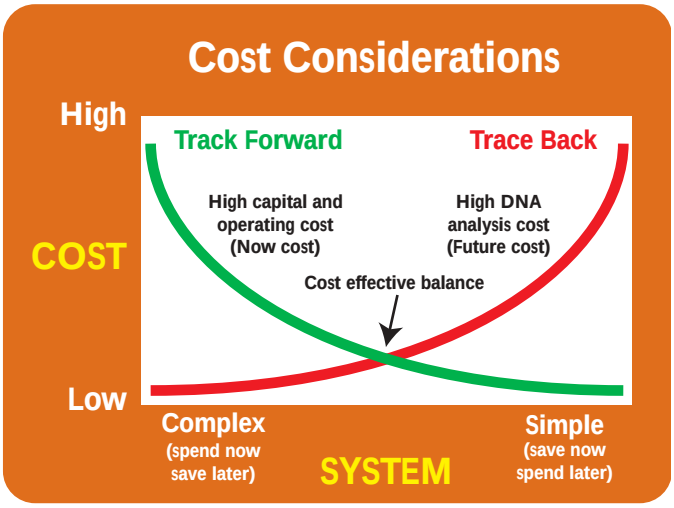


Cost to benefit ratio

The difficulty of traceability becomes apparent at the early stages of processing through to boning and any subsequent on-plant processes. The optimum level of linkage is determined by the combination of market requirements, practical limitations and cost considerations.

For example, two extremes of linkage can be considered.

Singular linkage

An EAN bar coded label is applied to the 1kg bag of foetal blood. The bag includes a unique serial number that is linked to the carcase body number and DNA sample number.

Figure 1: Singular linkage between the live animal and the foetal blood vac bag.

That print quality is important for all bar codes to ensure readability. There are standards issued by EAN Australia and that is why processors require certificates from EAN for bar code symbol verification for both consumer product and the trade item. There is a process of using application identifiers to show other qualitative data such as the batch number, the "used by" date, etc. The standards can be downloaded from the EAN website **www.ean.com.au**

Adoption of EAN codification and bar code labelling

There are a number of critical factors required to adopt EAN codification and bar code labelling. These include:

- Obtain a registration from EAN Australia for the plant (if not already obtained);
- Allocate unique product codes to each co-product;
- Include additional application identifiers (where required) for weights, batches, production dates and a unique serial number; and
- Label each level of packaging of the co-product with EAN.UCC labels.

Serial Shipping Container Code

The ability to pass forward individual live animal identification with a shipment of a bulk tanker is neither useful nor practical in the production of tallow, meat and bone meal. In these instances the use of a Serial Shipping Container Code (SSCC) that uniquely identifies the shipment and any batches it may contain is applicable.

Example of a SSCC YP Striploin

For each pallet and/or shipment (including truckload) generate an SSCC and where applicable, attach to the pallet and/or shipment.

The necessary individual and/or batch linkage information is recorded within the plant systems for carcase body numbers, lots, kill dates, shifts, batch codes, etc that relate to each unique serial numbered carton or shipment.

EAN workshops will be held across Australia, for further information contact Matt Bishop at Meat & Livestock Australia on **mbishop@mla.com.au** or (02) 9463 9233.

Value Adding to Blood Stickwater

When processing animal blood the majority of the blood solids are converted to blood meal. The stickwater produced still contains some protein which can be recovered and fed back into the blood meal process or modified to create an added value ingredient. Usually the stickwater is sent to the waste water treatment plant where it needs to be treated before discharge. The high concentration of Biological Oxygon Demand (BOD) present can cause problems downstream during treatment. Approximately 100 ML of blood stickwater is produced in Australia annually and this relatively small volume is dispersed across the country.

Typical composition of blood stickwater

Parameter	
pH	6.5 – 8.75
TDS	0.5 – 0.9 %
TSS	2.0 – 3.0 %
Protein	0.25 – 1.5 %
BOD	5,000 – 30,000 mg/L

In abattoirs throughout Australia coagulation processes vary greatly and none of these are off the shelf standard type processes. They have been all modified to suit the individual plant. A typical plant will have some sort of continuous steam injection tube (coagulator) followed by a retention tube to ensure temperature holding for full coagulation or denaturing the protein. A dewatering step with a decanter centrifuge to separate the solids followed by drying process to give a blood meal finished product.

The blood stickwater contains the fraction of solids that is not collected with the coagulated solids and can vary in composition depending on the process.

The separation of coagulated blood is the point where most processes vary in that the decanters used may be too small or the scroll speed incorrect or incorrectly configured for the flows and volume received to gain the best results.

Various methods of separation of stickwater solids include:

- Evaporation;
- Ultrafiltration;
- Precipitation;
- Dissolved Air Floatation (DAF); and
- Electrocoagulation. Click here to see the summary report **www.mla.com.au/environment**

Potential methods for protein modification or utilisation include:

- Enzyme hydrolysis;
- Chemical modification;
- Combination with other food/feeds; and
- Returned solids to blood meal stream.

A marketing study has been performed to determine the potential value for new ingredients and where they can be positioned in the market place. This has a bearing on what processes will be appropriate for a commercial approach to an ongoing stickwater solids process plant.

The following table depicts some potential markets.

Market	Production Volume Tonnes	Value $/Tonne	Total Value $mill	Ingredients Usage
Foam compounds	To be developed	1,500-2,000		
Adhesives	To be developed	Est. 5,000		Replace Casein 5,000t
Pet food 2000 Wet Dry Chilled	 250,000 140,000 24,000	 2,160 2,050	 538.4 286	Meat meal 5% 24,000t
Pet food 2003 Wet Dry Chilled	 274,000 146,000 24,000	1,000-4,000 2,160 2,050	 618 290	Meat meal 5% 24,000t
Stock feed	4.3 mill	1,000-2,000		Meat meal >90% 435,000t
Manufactured meat	310,000	3,000-4,500 5,500	1,700	ISP 0.7% 2,170t SWP 0.3% 800t

Limited opportunities for value adding are apparent for blood stickwater.

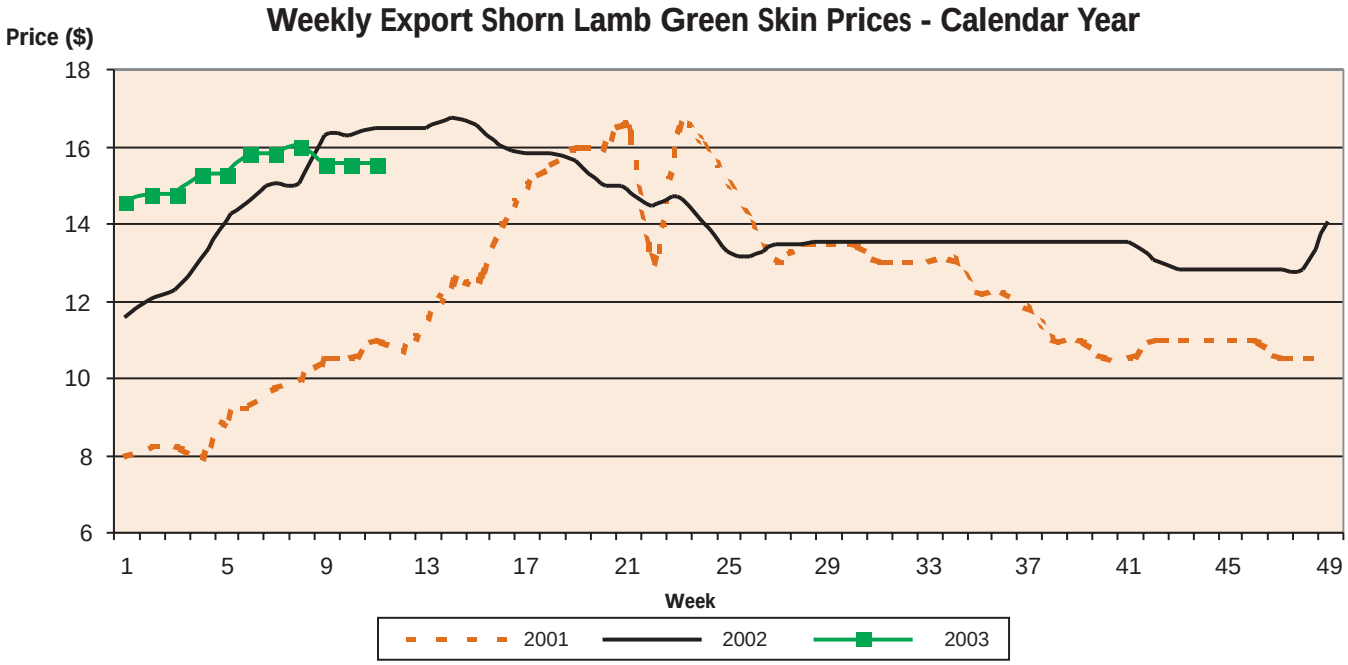
Sheepskin price fluctuation

The average export prices (A$FOB) were $11.41 for lambskins and $10.87 for sheepskins. While the average price for lambskins fell 13%, compared to the same period in last year, the price for sheepskins increased by 38% due to the reduction in supply of quality skins following years of de-stocking and drought.

For the first two months of the current calendar year, Australia exported 4 million woolskins for a value of $42.1 million. This represents a decrease of 11% in quantity and 5% in value compared to the same period in the previous year. More than 1.5 million sheepskins with a total value of $16 million were exported in January and February, representing an increase of 1% in quantity and 15% in value compared to the same period last year. The number of lambskins exported fell by 18% to 2.5 million with a 14% decrease in value to $26.1 million for this period.

Raw woolskin prices have remained firm over the past few months, but especially those from large export lambs (25kg+) and sheep. Quality sheepskin prices have remained steady at about $14 since January and are about $2.50 higher than they were at this time last year. Prices for good quality shorn lambskins, (refer to figure) continued to rise through January and February. This was dependant on size, wool quality and length, and amount of seed and burr, but leveled off to about $15.50 through March as the Australian dollar surged.

China remained Australia's dominant woolskin market with 65% share by quantity (11 million skins) and 56% by value of exports ($108.2 million). Exports to China increased by 7% (696,000) in quantity and 26% ($22 million) in value compared with the same period in the previous fiscal year. The disparity between export share by quantity and value demonstrates that China continues to be a market for lower priced (and thus lower quality) woolskins. However, Chinese buyers have increased the prices they have been willing to pay for skins to ensure that they achieve adequate numbers in a market with reduced supply. Additionally, the large increase in value for wool has enabled Chinese buyers to pay more due to the improved resale value of fellmongered and clipped wool.



Up and coming workshops and conferences

EAN workshops:

26 June – Perth • 27 June – Adelaide • 28 June – Melbourne • 1 July – Bathurst • 2 July – Brisbane

For more information please contact Matt Bishop on (02) 9493 9233 or **mbishop@mla.com.au**

Industrial Applications for Co products Workshop – Marriott, Surfers Paradise 15th July 2003

For more information please contact Heidi Philpott on (02) 9463 9166 or **hphilpott@mla.com.au**

Australian Renderers Association Symposium – Marriott, Surfers Paradise 16th to 18th July 2003

For more information please contact Graeme Banks on (02) 9686 3119 or **gsbanks@ozemail.com.au**

Recovery of Biological Products the Conference Series

The Recovery Conference series is the premier forum for the presentation and discussion of the status, direction and trends in the recovery of biological products of therapeutic, diagnostic and nutritional interest to society. The international biennial conference opens the opportunity for academia to meet industry representatives in the pursuit of cutting edge and trans-disciplinary science and technology. The meetings are characterised by active participation, dynamic exchange of ideas and views on emerging technologies and discussion of the future impact of peripheral sciences on the industrial application of recovery technologies.

Established in 1981, the conference brings an inimitable array of disciplines together to provide a platform to develop guidelines for biorecovery processes, promote the image and global agenda of downstream processing and foster the relationship with government and international agencies. With a clear focus on the future, the conference will play a proactive role in catalysing the flow of new ideas and their progress from theoretical function to beneficial use. While maintaining continuity of theme and quality the series will draw on its intellectual capital as well as ensuring an influx of ideas from new generations who will take Recovery of Biological Products far into the 21st Century and the second millennium.

The next conference, Recovery of Biological Products XI, will take place in Banff, Canada, 14 – 19 September 2003.

Further information may be found at:
www.recoveryconferences.org

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