



## Message from Stewart McGlashan, Program Manager

The 2005-06 year ended on a stronger note, with the overall value of co-products increasing, although the value of different co-product categories fluctuated. Moving forward, the firmer prices are indicative of higher proportional returns from animal processing for the co-products sector.

This will largely be determined by the industry's heightened exploitation of co-products and access to new markets through the development of innovative, value-added products.

MLA will continue to play an active and significant role in this area, building on existing research and development, and commissioning new studies to deliver improvements in production, sustainability and profitability across the industry.

This edition of *Fifth Quarter* features recent research results that point to major opportunities for increasing the value of red meat products in pet food and for supply of tallow to the fledgling Australian biofuels market – a breakthrough that would provide substantial long-term environmental and economic advantages.

The MLA examination of offal collected at abattoirs identified production of finished pet food by meat processors as the major opening for raising the value of red meat products in pet food, while a life-cycle analysis of biodiesel produced from animal fats demonstrated the renewable nature of tallow-based biodiesel, with production set to expand in line with increasing demand for biofuels.

For further information on these studies,  
please contact me at  
[smcglashan@mla.com.au](mailto:smcglashan@mla.com.au)



Stewart McGlashan  
PROGRAM MANAGER

## CO-PRODUCTS FOR PET FOOD

An MLA examination of offal collected at abattoirs has identified major opportunities for increasing the value of red meat products in pet food.

The study is the latest in a string of research projects conducted by MLA to maintain and improve the value of co-products used in pet food, which provides the highest returns for non-edible mainstream meat industry co-products.

MLA conducted a study of the pet food market in 1992 and investigated R&D opportunities to improve the value of co-products to the pet food industry in 2004 – the same year it hosted a workshop with meat and pet food industry representatives led by Nancy Cook from the Pet Food Institute of the USA.

The most recent study identified production of finished pet food by meat processors as the major opportunity for increasing the value of red meat products in the pet food industry, citing chilled pet foods and pet treats as the strongest growing products in the market.

Most pet food offal is used in canned pet food. However the wet pet food market, which is dominated by two manufacturers, is shrinking. The decline has triggered a reduction in demand for red meat products, which have largely been replaced by chunked textured vegetable protein and ingredients from the poultry industry.

The study concluded that while the sale of offal as a pet food ingredient is potentially more profitable than other non-edible uses, profit margins may not justify setting up the processing facilities required, particularly to produce frozen offal.

Pet food offal is collected in both fresh and frozen forms. Fresh offal is collected as natural fall in one-tonne bins with no segregation or trimming. Intermediary collection agencies add value by sorting offal and providing warehousing and distribution services to pet food companies. Conversely, frozen offal must be segregated into different items at the abattoir and some offal is extensively trimmed. For example, lung lobes are recovered after separation from the trachea.

The average price paid for fresh pet food is about 20 cents per kilogram, with prices dependent on the volume available and transport costs from the abattoirs to the collection agency's processing facilities. The average price of frozen pet food is about 60 cents per kilogram delivered.

The amount of pet food offal collected at an abattoir also depends on whether it is fresh or frozen. The typical amount of fresh offal collected is about 0.6 to 1 tonne per 100 head of cattle and 1.38 to 1.75 tonnes per 1000 head of sheep, while the typical amount of frozen offal is about 0.25 tonne per 100 head of cattle and 0.5 tonne per 100 head of sheep. The weight difference is due to the difference in trim for fresh and frozen offal.

The survey confirmed that pet food offal provides a better return than other uses of offal, with the exception of human consumption. Table 1 shows the estimated margins for different uses of liver and lung, accounting for operational costs but not capital costs related to collection of frozen pet food. The latter can be substantial as offal designated for uses other than human consumption must be handled and stored in separate freezer and freezer store facilities. Considering the relatively small volumes of offal available, investment in equipment for collection of frozen pet food offal may not be justifiable.

**TABLE 1: ESTIMATED MARGINS FOR FRESH AND FROZEN OFFAL COMPARED WITH OTHER USES**

Use	Price	Estimated margin
Lung for edible use (if the abattoir has access to Halal markets)	\$1.9 per kg	\$1.5 per kg
Liver for edible use	\$1.6 per kg	\$1.2 per kg
Fresh pet food	Average 20 cents per kg ex-works	15 cents per kg
Frozen pet food	Average 60 cents per kg delivered	20 to 35 cents per kg
Lungs for pharmaceutical use	80 cents per kg	45 cents per kg
Rendering liver and lungs		10 cents per kg

The study found that only 61 per cent of the 31 abattoirs surveyed by MLA collect offal for pet food, and that the national figure is probably less than 50 per cent given that the research focused on abattoirs in Victoria, NSW and southern Queensland where there are centres for pet food production.

As less than 50 per cent of abattoirs collect offal for use in pet food it must be assumed that the market is well supplied. Pet food manufacturers may want a wider range of suppliers from the red meat processing industry but this would not necessarily increase volume or revenues. Since the market for canned pet foods has declined, demand for red meat ingredients for use in these products has also slowed.

The options for expanding the use of red meat products as pet food ingredients are: improving the quality and range of products available to major pet food manufacturers; or producing pet food products for niche markets.

Improving the quality of product provided to manufacturers may increase the volume of red meat products



Frozen offal for pet food appears to offer higher returns than fresh offal, however it requires trimming and dedicated freezing facilities.

used in pet food, for example by replacing existing vegetable or chicken sources, but is unlikely to affect prices. In practice, improving quality may improve an individual supplier's ranking on the list of approved suppliers, but overall the volume of offal used in pet food is not likely to increase as the market is already well supplied.

There are limited opportunities for meat processors to develop novel meat-based ingredients for pet food, such as digests and flavour enhancers. However, these ingredients are used at low inclusion rates and the potential market is initially small due to competition with established chicken products.

There are also small markets for higher-priced red meat ingredients for speciality pet food products such as dried liver strips. Again, the volume of red-meat products used in these applications is small and the products are usually supplied as edible grade.

Production of finished pet food by meat processors

represents the major opportunity for increasing the value of red meat products. High value products such as dried liver and dried ears carry retail values of up to \$40 per kilogram, but product yield is about 30 per cent of the raw material. Although the volume of the market for pet treats is low compared with the other pet food categories, growth is strong at about 8 per cent per annum for dog treats.

Growth of the chilled pet food market is strongest at 23 per cent (2004). Chilled pet food occupies about 10 per cent volume of the total pet food market and requires less capital investment than canned and dried pet foods, emerging as the most promising sector for meat processors to increase the value of products used in pet food.

## BIODIESEL – A RENEWABLE FUEL

Preliminary research has demonstrated the renewable nature of tallow-based biodiesel, with production set to expand in line with increasing demand for biofuels.

A life-cycle analysis of biodiesel produced from animal fats and used cooking oils indicated that as a renewable fuel, tallow-based biodiesel would satisfy candidature for tax concessions in Australia.

With at least three plants expected to be commissioned in Australia in the near future, each with an annual production capacity of 50,000 tonnes, there may be significant opportunities for meat processors to supply the fledgling biofuels market.

The analysis, conducted by the Fats and Proteins Research Foundation (FPRF), focused on the Fossil Energy Ratio of biodiesel – the amount of energy produced relative to the amount of fossil fuel energy consumed in the energy source's life-cycle. It took into account fossil fuel consumption in rendering to produce tallow, transportation of tallow and biodiesel, and tallow processing to make biodiesel.

The FPRF estimated that the Fossil Energy Ratio of tallow-based biodiesel was 3.18 i.e. biodiesel yields 3.18 units of fuel energy for every unit of fossil fuel consumed, concluding that the high Fossil Energy Ratio was indicative of the fuel's renewable nature. By contrast, petroleum diesel's life-cycle yields 0.83 units of product energy per unit of fossil energy consumed, while the Fossil Energy Ratio of soy oil biodiesel is slightly higher than tallow biodiesel because the fossil fuel energy consumed rendering tallow is slightly higher than the energy used growing and crushing soy beans. The Fossil Energy Ratio of biodiesel created from used cooking oil is 4.6, as preparation of used oil for biodiesel production requires very little energy input.

The FPRF has commissioned further work on the life-cycle analysis of tallow biodiesel.

## CO-PRODUCTS' PRICES FIRMER

The overall value of co-products has increased in 2006, although the value of different co-product categories has fluctuated. Strong gains in hide prices boosted co-products values in March, April and May, while firmer offal prices, particularly for tongues, supported overall co-product values earlier this year.

Offal prices have generally been steady, with strong demand for Halal offal in Indonesia and increased prices for heart, beef lips, tongue root and lung. Prices of Halal hearts have been firm all year, delivering an average \$2.02 per kilogram in April – the highest price for heart recorded in the MLA co-product monitor price database. The value of the Australian dollar was at its lowest level for the year in April, which supported offal prices.

Liver prices have also improved this year due to demand from Russia. The Russian price has led the market but in April there was a 40 cents per kilogram increase in the average price of Halal liver as Indonesian buyers followed the Russian lead.

Tongue prices have continued on a rollercoaster ride, while other Japanese offal has been steady. Last November tongue prices fell to their lowest level in two years due to consumer resistance to record prices in mid-2005. Prices started to turn around and continued to climb when US imports were curtailed in January. Sales of tongues for Golden Week in April were not as strong as expected and prices have subsequently slipped back, with forecasts they will settle at around \$16 to \$18 per kilogram.

Tripe products including omasum and honeycomb have been weak for most of this year, with restrictions on exports to China and Malaysia impacting on tripe markets. Prices were firmer in March and April and demand for tripe in Hong Kong has strengthened, while omasum prices have also improved from low levels.

Prices of rendered products have been mixed in 2006 with a rise in tallow prices and declining meat meal prices. Firm tallow prices can be attributed to expectations of reduced supplies early in the year and a weaker Australian dollar. The price of palm stearine has increased steadily this year, making tallow more attractive in export markets, however the stronger dollar at the end of April and increased production following the Easter break produced lower tallow prices that month.

Domestic demand for tallow is expected to increase as biodiesel plants come on-stream. Biodiesel's effect on tallow prices remains to be seen, but it is likely that the soap-making export markets, particularly China, will remain the main outlet for Australian tallow. The value of palm stearine will put a limit on tallow prices in these markets.

Meat meal prices have fallen since December, when domestic feed producers stocked up in anticipation of short supplies in early 2006. The stock piles were slow to move due to reduced poultry consumption and low soy meal prices, and domestic prices for meat meal were consequentially weak. In contrast, export demand from China has been firm.

US meat meal is excluded from the Chinese market and Chinese feed mills are in search of a replacement for fish meal, which is expensive and scarce. Export meat meal prices were at a premium over domestic prices in the first quarter of the year, however improved domestic demand in April has produced similar domestic and export prices.

Prices of tallow and palm stearine, compared with meat meal and soy meal prices, are shown in Figures 3 and 4.

Hide prices have increased sharply since February. There is strong competition between buyers sourcing product for export, which has pushed hide prices well above US prices. It is likely that a correction will occur.

## THE RED MEAT INDUSTRY PROFESSIONAL DEVELOPMENT PROGRAM

Are you looking for a challenging, dynamic and rewarding job where you will have the opportunity to develop your skills and be a future leader in the red meat industry? If so the Red Meat Industry Professional Development Program is for you! Applications are now open for the 2006/07 Undergraduate Program and Round 2 of the Professional Graduate Program.

### UNDERGRADUATE PROGRAM:

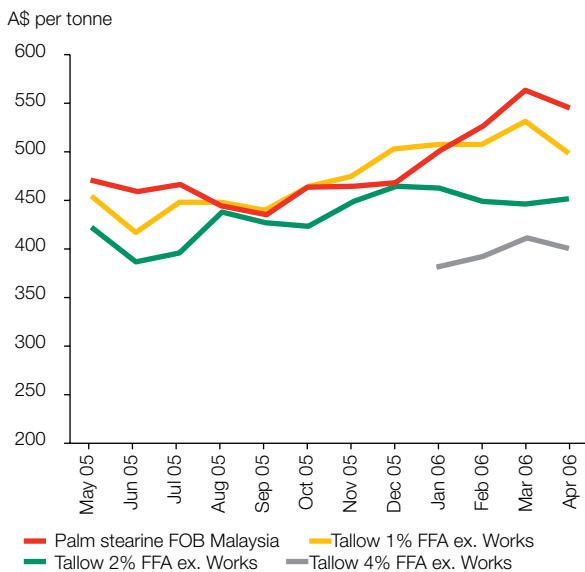
The Red Meat Industry Undergraduate Program operates over the university summer break (approximately 12-13 weeks) and engages a penultimate year student. Over 70 projects have been conducted to date, including: a water audit, a waste and heat steam optimisation, lubrication programs plus many more.

### PROFESSIONAL GRADUATE PROGRAM:

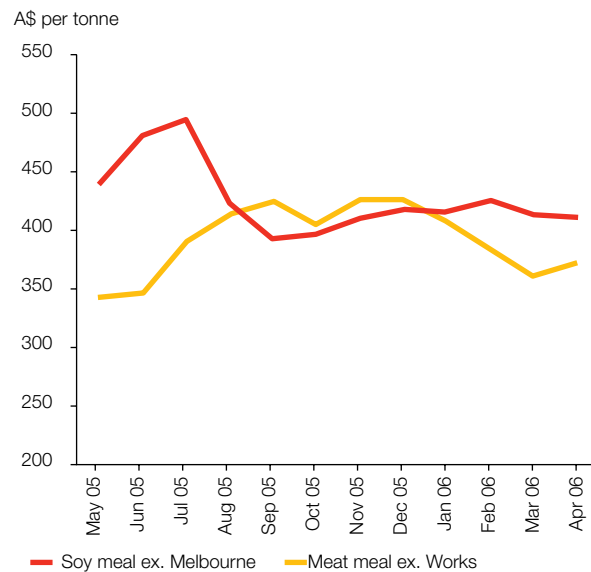
The Red Meat Industry Professional Graduate Program is a three-year program that aims to provide university graduates with broad exposure to the red meat industry, in addition to gaining specialist skills and training which will enable each graduate to develop a supported career.

For more information please contact:  
[rmipdp@mla.com.au](mailto:rmipdp@mla.com.au) or 02 9463 9166.

## TALLOW AND PALM STEARINE PRICES



## MEAT AND SOY MEAL PRICES



### Contact

**STEWART McGLASHAN**  
 Client and Innovation Services  
 Meat & Livestock Australia  
 Ph: 02 9463 9212  
 Fax: 02 9463 9182  
 Email: [smcglashan@mla.com.au](mailto:smcglashan@mla.com.au)



Level 1, 165 Walker Street, North Sydney NSW 2060  
 Ph: 02 9463 9333 Fax: 02 9463 9393  
[www.mla.com.au](http://www.mla.com.au)