

J C Andrews Award Address – Earning More in the Meat Industry

Rob Archibald

The J C Andrews Award

The J C Andrews award celebrates the achievements of Dr John Clark Andrews as the catalyst to the setting up of the Massey University Food Technology degree. J C Andrews started his career in the meat industry as a meat works chemist. In 1945 he proposed the establishment of a chair in Food Technology but it took until 1961, while Dr Andrews was Chancellor of Massey University for the Department of Food Technology to be established at Massey

When I look down the list of previous recipients I am truly humbled to join a list of people who I have admired through my career in the meat industry. Sam Oldfield was my tutor on the Post Graduate Diploma in Technology (Meat) course, Lester Davey was the Director of the Meat Industry Research Institute of New Zealand (MIRINZ) when I first joined, Janis Swan worked with me in the Processed Meats Section at MIRINZ. Also on the list are people I admire from outside the meat industry, for example, Kevin Marshall and Mike Matthews who have been a tremendous help to me in recent times as we try to emulate in a very small way in the meat industry what the dairy industry has achieved on a massive scale.

The Meat Industry today

In the last 5 years we have seen an unprecedented conversion of land to dairying. This means three things for the meat industry 1) less land for sheep and beef farming. 2) more manufacturing meat and meat by-products from manufacturing animals such as cull cows, bobby calves, and dairy bulls. 3) beef & sheep farmers wanting more for each animal to stay in the meat business.

With limits on the available land the Meat Industry can't produce more – so it needs to earn more from what it produces. Farmers and the country as a whole spend a huge amount both economically and ecologically raising animals so we just have to earn more from them.

What I am going to talk about?

I have been told I can talk about anything in this J C Andrews address so I'm going to talk about my passion: Adding value to low value meat cuts and to meat by-product streams, by developing New Businesses, New Products, New Processes and New Equipment. To illustrate this I will talk about my experiences in developing a new product, a new business and a new piece of equipment.

A reduction in the number of beef animals and the competition in the processing sector for stock means significant upward pressure on livestock prices at the farm gate. Significant competition for meat sales in the marketplace means that meat processors are squeezed. The current profit margin for the meat industry in New Zealand is around 1.5 - 2.5% of revenue. This is unsustainable. For most of the 30 years I have been in the industry there have been calls for more added value products in the New Zealand meat industry. The aim is to have a profit margin from these added value products trending over 10% so that we



NZIFST 2016 J C Andrews recipient, Rob Archibald

can have a sustainable industry where innovation flourishes.

The opportunity is to add value to our manufacturing meat and our meat by products.

New Zealand meat exports total \$7bn of which at least \$1.5bn is manufacturing beef. This meat is sold primarily to the US meat grinding industry to be made into hamburger patties. Manufacturing meat is sold on just one product characteristic – its leanness.

Manufacturing beef is a commodity and competes with similar lean beef, mainly from Australia and Uruguay. It's obvious that New Zealand is not going to earn more than our competitors if we simply



The current retail range of Angel Bay

sell the same product, to the same customers for the same price. We have to earn more by adding value to our manufacturing meat here in New Zealand.

Developing new food businesses from scratch is not easy, they are usually capital hungry and resource consuming. But it can be done. So I thought I'd share with you some of my learnings from developing added value products from manufacturing meat using the development of the Angel Bay brand of patties as an example.

New Product/New Business

Angel Bay and ANZCO Green Island

One of my first roles when I joined ANZCO was to recommission a burger line at their Green Island site. This recommissioning was to provide what the Japanese called Hamburger Steaks for the Japanese convenience store chain called Family Mart. From a New Zealand perspective these were not the traditional raw all meat patties. These were par-cooked patties that had onions, bread crumbs and eggs added to them.

Learning a whole new business

Making Hamburger Steaks for the Japanese taught us a whole new business. We learnt a market we knew very little about. We re-commissioned a production line and ultimately a whole factory to make Hamburger Steaks for Japan. Having a customer that took all our production from the moment we started meant we ironed out our production issues while making money. We learned about the very strict and demanding quality standards applied by the Japanese, particularly what they perceive of as foreign objects. Where New Zealand consumers find a tiny piece of bone in a meat product they will put it on the side of the plate because it is a not totally unexpected in a meat product. However, Japanese see it as a foreign object and are far more demanding. So getting the plant up and running on Japanese products was great because we adopted many of their quality systems and so subsequently we have had few quality issues.

On the strength of the Family Mart business we gained other Japanese customers and what we discovered while making these hamburger steaks was that New Zealanders also liked them. At the time there were no par-cooked burgers on the NZ market. The more we tried these Japanese Hamburger Steaks out on friends, families, scout fund raisers, and office barbeques the more convinced we became that with some tweaking of the recipes this product would be successful

in New Zealand. So we developed our own version of the Japanese Hamburger Steak which we branded Angel Bay.

The birth of Angel Bay was helped by the underpinning base load from Japan that kept the plant profitable while the product was refined and all the marketing systems were developed.

What I learned about building a business

The development of a cooked hamburger business and ultimately the Angel Bay brand has given me some key learnings in terms of building an added value product and ultimately a whole new business.

First thing is to learn the business. Everyone from the Board down wants to see a New Business make money from start-up. However often it is necessary to set time and cash aside to learn the new business. Learning the business means understanding the market, understanding the product, understanding the process to make it, and understanding the financial implications of the business such as cash flow, seasonality, and logistics. Put simply, with any new product it is necessary learn: how to make it, how to sell it, how to make a profit out of it.

In reality there is a need to budget to learn the business. This means there is a need to heavily front load a new business with talented people. People who are either recruited to staff or hired temporarily. To be successful, a new business needs the best leaders, marketers, market researchers, and technical people that can be called on. These people need to have that thirst to innovate and build something new. If the budget does not allow for this then there is a need to temper the Board's expectations of a gold rush from the new business.

Although I am not keen on developing "me too" products, often the first place to start learning a new business is to produce "me too" products. This is what we did when we made the Hamburger Steaks for Japanese customers. The important thing was to kick on and find that point of difference and innovate.

The more radical an innovation the harder it is to sell. That's not just selling to customers and consumers but also the internal selling that has to go on to get a product concept or a new business accepted within a company and also in the market place. Angel Bay was so successful because it built on people's knowledge of hamburgers. At retail people already knew how to use burgers: in buns, in an open sandwich, or as a centre of the plate item. All we had to do was to teach people that these burgers were par-cooked so could be microwaved from frozen as well as the traditional ways of cooking burgers such as, BBQ, pan fried, or reheated in an oven.

The same burger could be used at food service, and give the same good tasting succulent burger. At food service it was safer than the traditional raw burgers because it had already been cooked right through under a controlled temperature regime during production. There was not the same risk as with raw patties where the potential to undercook exists.

Being first to market was critical because Angel Bay set the standard for par-cooked patties. Other competitors have subsequently found it difficult to copy Angel Bay. Having the distinctive foil packaging made the brand stand out in supermarket freezer cabinets which was very helpful at the start but this feature was very rapidly copied by a competitor which diminished its instant recognition.

Once we had an established brand we were able to capture a premium because we were able to deliver on that “divine quality, heavenly taste” strap-line that Angel Bay used.

Although from the start it was always a successful product Angel Bay was not an overnight financial success as there was a need to cover set up costs around sales and marketing and get past a critical sales volume. This took a while. The longer it takes to get an innovation profitable the louder the nay-sayers and detractors get and the more internal reviews you have to face. So there is a need to fight hard for sufficient marketers and sales people upfront and get them on the job early as it takes a while for customers to discover and learn about your new product and new business

As a product developer it is important to make sure you have a passionate team around you who want to make the project work. Do not have any Nay sayers in the team. However the nay-sayers must be listened to carefully and their criticisms thoroughly addressed. At best nay-sayers will slow progress, at worst they will derail the project.

Constantly review and assess your sales and marketing strategy

Angel Bay had a major lift in sales when the initial sales and marketing pitch was switched from distributors to their customers. In the early days distributors could not see the advantages of Angel Bay over raw meat patties. The customers could see the advantages and wanted Angel Bay – the distributors only saw it as another inventory item. So when Angel Bay found customers who liked and wanted the product we would then visit their distributor and notify them that one of their customers wanted Angel Bay. This resulted in pull through of product rather than trying to push the product onto an often reluctant distributor. For the distributor this meant that they had ready customers which meant they had to do less leg work. It also meant that Angel Bay was able to do its own sales pitch. This was better for Angel Bay as their sales staff were always more passionate about our product than a distributor was going to be. However this strategy of engaging direct with the customer and getting them to pull Angel Bay through the distribution systems meant there was a need for a significant investment in an on the ground sales force in each market.

Well managed production

The Angel Bay production site was well led by Henry Wilson, and was very stable. The main people on the ANZCO Green Island site team hardly changed over the years which made for fewer mistakes due to misunderstandings and very good institutional knowledge

By launching its own branded product ANZCO was able to control its own destiny in the par-cooked hamburger patty category. It buffered the business against exchange rate variations. As the Kiwi dollar strengthened against the Yen, ANZCO's Japanese Hamburger Steaks business became more marginal. As a result the Japanese business slowed and Angel Bay took up the resulting capacity.

The lessons from Angel Bay were:

- Have a distinctive product which is not a “me-to”,
- Have a significant point of difference
- Make sure the new product is not too different to current products because it takes huge resources to market a very radical product
- Convenience sells
- A distinctive brand means that you can control your own destiny
- A foot in the domestic market protects from foreign exchange volatility
- Balance base load production with branded product development to mitigate risk
- Front load the development team with good positive people – particularly marketers, product developers
- Well led production site is a must
- Pitch much more to customers than to distributors

New Equipment/New Process

Meatvision Ltd and a Fat Analysis Scanner

More can be earned from existing products by improving existing processes through the addition of new equipment. An example of how a new process using new equipment can add value to New Zealand's manufacturing meat was the development of the Eagle FA (Fat Analysis scanner). This was developed by Meatvision Ltd, a joint venture between the Institute of GNS Science (GNS) and ANZCO Foods, in partnership with the USA company Eagle Product Inspection (Eagle PI).

As mentioned earlier, New Zealand exports over \$1.5bn of manufacturing beef and this mainly goes to processed meat products like hamburgers. Whether we process the manufacturing meat here or export it as commodity beef we have to know what the fat content is and that the meat is free of foreign objects including bone fragments. The measurement of the fat content has to be accurate and presented in real time.

Historically the boners and packers in the boning rooms have determined the fat content of the meat boxes by eye. Laboratory results, irrespective of how they were done, have always been too slow to be used for process control and their accuracy depended on how representative of the meat carton the lab sample was. So there has been a reliance on the eyes of the boners and packers. If the boners and packers got it wrong and it was too fat a claim was paid. If they got it wrong and it was too lean it was like throwing money away. In addition, once packed there were limited options to detect bone and other dense foreign objects.

If a system could be developed that improved the accuracy of the measurement of the fat content of cartoned manufacturing meat there was the potential to add significantly to the value of manufacturing meat by reducing: claims, lean meat give away, and foreign objects. Such a system would also allow the automation of fat control in processed meat manufacture such as sausage and hamburger manufacture.

This challenge was addressed by Meatvision Ltd in partnership with Eagle PI. GNS had developed an algorithm which they had applied to a prototype scanner which could determine the fat content of meat and could also detect foreign objects. ANZCO Foods, like other meat



**Murray Bartle,
GNS Science,
developer of
the fat analysis
algorithm**

**Fat Analysis
Scanner in
operation at
ANZCO's Eltham
plant**

companies at the time, had a need for such a scanner offering the attributes of accurate, real time, non-invasive fat determination and foreign object detection. ANZCO had the desire and the ability to trial and commercialise the prototype scanner by guiding its development so that it met the functionality required by a meat company and the specific needs of the boning room.

Eagle PI was approached to provide the commercial scanner. As a result a partnership was established between Eagle PI and Meatvision. Ultimately a scanner, the Eagle FA, was developed which added value to manufacturing meat indirectly by significantly improving the accuracy, timeliness of fat results, and the detection of foreign objects. This was achieved by all parties working as a team.

At Meatvision a team was formed around the GNS scientists lead by the physicist, Murray Bartle, and the factory trials were undertaken at ANZCO's Eltham site. The team work involved in developing this system was very important to its ultimate success. The challenge at the trial site was to convert a prototype into a commercial scanner that was integrated into the boning room environment. To do this the scanner had to meet all reliability and accuracy specifications and also be user friendly by delivering results to the boners, packers, supervisors and the management systems.

The CEO at the Eltham site, Trevor Johnston, set the tone for the trials and the constant on-site development of the prototype scanner. His first step was to ensure that everyone on site who might be affected by the introduction of the scanner or who might influence its development knew about the trial. He made sure they all understood the benefits of a successful development. His second step was to create a project team which included the operations manager, production supervisors, IT staff and engineers. The team was headed by a site project manager and was tasked with ensuring that the GNS team were well supported as they made improvements to the prototype scanner. All team members had a "can do" "make it happen approach" and were extremely positive about the project. This is what Trevor referred to

as "Getting the people right first" and it is a management philosophy that works extremely well.

All parties to the project: Meatvision, GNS, ANZCO Eltham and Eagle PI had their roles to play and no party within the team could make it work without the rest of the team.

However, it was the formation of the Meatvision 50:50 joint venture (JV) between GNS and ANZCO, where both parties benefited that set the platform for this team work. The GNS and ANZCO teams were ultimately managed by Meatvision and this JV structure worked exceptionally well because it ensured the involvement of upper management of both organisation through the Meatvision Board.

The successful development of the scanner was achieved because GNS was not just a supplier of a service, they were fully incorporated into the project and benefitted on a 50:50 basis with ANZCO from its ultimate success.

Another reason for its success was that GNS and ANZCO focussed on just what they were good at. GNS was good at algorithm development and the physics behind dual energy X-ray (DEXA) scanners and ANZCO had a real need and it also had a trial site at ANZCO Eltham where there was a culture of trialling innovative equipment and processes. Obviously, neither ANZCO or GNS were capable of manufacturing DEXA scanners. Meatvision's partner, Eagle PI were experts in the manufacture and marketing of DEXA scanners for the food industry. So we had the best DEXA scanner manufacturer, we had a world leading team from GNS and we had a highly committed trial site at Eltham that had a culture of team work. By each team focusing on what they



**Trevor Johnston,
CEO ANZCO's
Eltham site**



were good at we developed a very successful in-line fat analysis system which serves ANZCO well and is now being sold around the world.

This technology is used in New Zealand to get the fat content in ANZCO's burger patties just right and while we look to develop more options for adding value to manufacturing meat here in New Zealand it is also helping get more value for our commodity manufacturing beef by not having meat that is too fat – resulting in claims or having meat that is too lean and therefore throwing money away.

This project was successful because of:

- teamwork,
- the JV/partnership structure where each of the party shared the risks and rewards,
- each party focussing on their own area of expertise.

New Business

In 2002 we set up Taranaki Bio Extracts (TBE) to add value to by-products from the boning room. This was a JV between the rendering entrepreneur Glenn Smith who runs SBT Group and ANZCO Foods. My role in this arrangement was to pull the JV together, do the marketing, and financial models, and Glenn mostly looked after building the facility. This was a great arrangement as Glenn, like most entrepreneurs, simply made things happen.

Traditionally the meat is taken off the carcass and all the animal material that is not edible or can't be used elsewhere is rendered into just two products, tallow and meat and bone meal which goes to chicken

feed. We set up Taranaki Bio Extracts to produce defatted bone chips which are a precursor in the manufacturing process of making bone gelatine. This is what we call our gelbone business. Before we even started building the plant we had customers wanting our gelbone. This was a perfect position to be in for a new business.

In 2005 TBE had a customer wanting to produce beef powder and so we installed a beef powder line and in 2013 we had customers wanting beef bone extract so we installed an extract line. These developments were all guided by customers wanting products that we had the capability of making but not the facilities to make them. They all add value to by-products from meat industry's boning rooms. We successfully made each product.

Lessons from TBE

JV's can be good. In TBE's case we had an entrepreneur who was prepared to make things happen. There is a need to balance entrepreneurial flair with corporate controls. On one hand the entrepreneur takes more risks, however too much corporate control with a no risk approach means new stuff doesn't happen or is too slow to happen to take advantage of the opportunity.

Best way to build a business is to have customers wanting products before there even are the facilities available to make them. Building



**Glenn Smith,
Director Taranaki
Bio Extracts**

JCA ADDRESS



the facilities and then hoping customers will come is much more risky. TBE is in the ingredient business. This business is all B2B where we not only need to know the customers' product needs but also, and more importantly, need to do due diligence on their business needs and aspirations. A number of our customers have been long term, and stable but at other times we have been approached by customers who have talked long term business but really never had any intentions of long term business. We have found that in all cases it's imperative, as far as is possible, to understand a customer's business goals. Good communication between customer and TBE as a supplier provides trust and has the potential to open up other possible product development opportunities.

The future

So I look forward to a future where we maximise the returns on our animals by developing a raft of new businesses, new products, new processes and new equipment that add value to New Zealand's manufacturing meat and meat by-products. I foresee much more manufacturing meat processed into food items here in New Zealand for export. In addition I foresee a reduction in traditional rendering as more and more material is saved at meat plants for edible applications. Many of these applications will be ingredients providing meat proteins, supplements, and flavours which are likely to be manufactured using technology developed in the New Zealand dairy industry.

The goal has to be for New Zealand to earn more from what it produces rather than simply producing more.

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