



Final report

Arcadian Co-Innovation Manager

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Abstract

This is a report summarizing key activities from Arcadian and MLA donor company's Co-Innovation Manager Program from late 2017 to early 2021.

Included is an overview of Arcadian's innovation and high value growth strategies via design-led innovation thinking, tools and approaches. The collaboration's overarching aim was to work on developing innovation capability via initiatives that grow demand and create and capture significantly higher value on current commodity red meat offer and increased engagement within Arcadian's network.

The focus was on finding the correct NPD resourcing and process to improve the development and launch of new products. Expanding current capabilities of the company by utilising 3rd party manufactures to assist with filling some gaps in the market with products that were too far from the standard sites processing capabilities. Utilising market insight to give the consumers what they are wanting and utilising technology improvements to drive efficiency, quality and development. Along with using new innovation and research to problem solve issues as a way of continuous improvement for the products and the processes.

The benefits are to raise the perception of the red meat category with consumers and drive a higher value and better quality for the category.

As for Arcadian, a legacy framework to innovation has resulted.

With the support of the Co-Innovation Program the transformation at Arcadian Meat Company over the last three years has resulted in:

- Investment in facilities to double production capacity over the next ten years
- Reduction in time to market from 6-12 months to 3 months
- 40% reduction in labour costs since 2017
- A 75% reduction in customer complaints since 2017
- 170 new products in two years
- Reduced wastage due to using offcuts in all sorts of new ways
- 60-70% increase in employee retention
- Achievement of carbon neutrality through the International Carbon Institute

Executive summary

Background

Arcadian Organic & Natural Meat Co. (“Arcadian”) is one of Australia's leading suppliers of premium quality certified organic and natural beef and lamb meat. Arcadian and MLA Donor Company (MDC) have agreed to progress a Co-Innovation Program over a three year period commencing in December 2017. The focus of the program was to support the development of Arcadian’s high value organic and natural meat growth strategies in both the domestic and global markets

The focus was on strategy development and capability building including the commercial application of insights and design-led innovation methodologies. Project learnings and outcomes were documented and reported during the co-innovation.

A range of new products, services, technology adoption and value chain design were required to underpin Arcadian’s Horizon (H)2 business growth during the 3-4 year period. This project identified and developed a suite of subsequent projects aligning with MLA objectives

Objectives – achieved:

- Implementation of Arcadian’s high value growth strategies
- Quantifiable improvements in company innovation measures achieved including
 - design-led innovation thinking, tools and approaches
 - initiatives that grow demand and create and capture significantly higher value on current commodity red meat offer
 - implementation of digital value chain initiatives
 - engagement with/capability building Arcadian’s producer network

Methodology

Arcadians worked to trial design led thinking to accelerate innovation. This approach helped provide ‘voice of the customer’ input in designing high valued solutions where there is a clearly defined “problem to solve” or “job to be done” which leads ‘where to’ play growth options.

Benefits to industry

Arcadian research and approach to the development and innovation helped to show improved process development and reduced some research and knowledge gaps in the industry. The approach used and the area’s focuses on is a footprint for others to follow Arcadians outside box innovation for development.

Future research and recommendations

Arcadian continues to innovate and always looking for continuous products and process improvement. The objectives for high value growth and improvements will still be key to ongoing success/gains.

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1. Background

1.1.1 NPD resourcing and process

The traditional Arcadian and the red meat industry in general approach to developing products was based around basic cut and ground meat offerings that come from traditional butcher style red meat product. Arcadian sought to address this gap in product development. This allowed Arcadian to review and develop and much wider scope of products and put in place the required checks and procedures in place to meet the highly regulated retail food manufacturing requirements and subsequently meet the requirements to supply some further branded and private products nationally into the retail markets.

1.1.2 Expanding Capabilities

Along with the NPD resourcing Arcadian had acknowledged there was still a wide gap from what they could effectively manufacture and what the market and consumers were demanding. Arcadian set to review numerous 3rd party manufactures to allow them to expand the scope of their ranging to meet the retailers demand for the healthy, organic product ranges that Arcadian could provide. Over the course of several years and a lot of research and development Arcadian has joined up with 4 key manufacturers to supply work in progress products for cooked ready meals, convenient snacking, and smallgoods that Arcadian could still bring back to its site to finalise and send out to customers along with its standard range.

1.1.3 Market insight development

New trends emerging health trends threatening red meat sales including “meat substitute” plant based meatless products. Arcadian was tasked by the private and branded retailers to come up with some on point products that could lift perception of the red meat category offerings from the standard basic meat cuts and value add meat with fillers. Arcadian has successfully developed some paleo, flexitarian and FODMAP products to meet key consumer demands and health trends and to give consumers a better healthier alternative than traditional red meat offering rather than just moving to plant based options.

1.1.4 Technology Development

The red meat industry has typically been progressing towards packaging and technology to save time, money and improve quality.

However, there is new consumer and legislative demand to also ensure environmental factors are considered for manufacturers. Arcadian has taken a review of the fully supply changing and put in place a system to allow them to hit carbon neutrality across their full range.

Arcadian has also invested and new technology in tempering and packaging to help improve process efficiency, products quality and consistency and improve product appearance and sales. Innovation and leading research

1.1.5 Innovation and leading research

There is an industry gap in innovation and research into natural development of products with majority of research previously conducted on typical additives and products enhancers. However, consumers are pushing for cleaner products. Arcadians key for all of Arcadians new development is to provide clean label “pantry” ingredient lists consumers will understand and with no allergens and no E numbers. Along with further adding clean label function ingredients and sourcing new innovative ingredient to improve the process and the products. Arcadians new development has also been incorporating sodium and fat reductions and undertaken for a full review of available clean label shelf life enhancers.

2. Objectives

2.1.1 NPD resourcing and process

The objective to source suitable NPD resource and put in practical and workable processes to ensure compliance to customers, legislation and our own process was met. However, from start to end of the project there has been 4 separate NPD resources involved in the development of both the products, processes & innovation pathway which had changed significantly over lifespan of projects.

2.1.2 Expanding Capabilities

The objective to expand Arcadian’s capabilities was spearheaded by the NPD resource and the COO for Arcadian whom drove the innovation, improvements and capabilities of what Arcadian could supply to its customers. Arcadian met and exceeded the capability challenges for development and products and scope of the range they can now supply to the market.

2.1.3 Market insight development

The objective to deliver Arcadian’s consumers a better and healthier alternative to the traditional red meat offerings and to combat the new plant-based alternatives appearing was met. Arcadian managed to develop products in 3 new key health/lifestyle pathways - Paleo, Flexitarian & FODMAP.

2.1.4 Technology Development

The objective to continually improve Arcadian’s technology, efficiency, quality, and products presentation, along with meeting new environmental demands from consumers was met. Arcadian utilise new and emerging technology and packing to ensure they remain at the forefront of product presentation, environmentally sound packaging along with continuous improvements in efficiency, quality and consistency.

2.1.5 Innovation and leading research

The objective to ensure Arcadian products remain at the high level of the market and to meet growing consumer awareness and expectation of the ingredients and expected health aspects was met. This was a continuous improvement project with small steps along the development and

redevelopment of new and current products to ensure they always remain at the highest expected levels demanded.

3. Methodology

3.1.1 NPD resourcing and process

Arcadian initially put in place a technical resource to develop the framework for products development and capture the critical stages and gaps in the previous system. Over the project lifespan Arcadian moved to from butcher/industry technologist to Head chef/innovation to a senior NPD technologist/Food Chemist who have continued to review and enhance the systems throughout the project.

3.1.2 Expanding Capabilities

Arcadian worked closely with a lot of 3rd party manufactures and the COO and other employee contacts assisted with creating some close collaborative developments with the manufacturers. This approach let Arcadian develop a much wider scope of products expanding the capabilities for supply well outside their limited sites processing capabilities.

3.1.3 Market insight development

By maintaining relationships with the key manufactures in other countries, our own suppliers and our supermarket buyers Arcadian was poised to receive a lot of information of what was happening in overseas trends along with the push that was seen in the retail level in similar and other categories. This allowed Arcadian to develop and meet briefs and deliver the products demand by the consumers when or before they wanted them.

3.1.4 Technology Development

During the project Arcadian was always working closely with machinery and packaging suppliers along with industry partners to ensure they were aware of new and emerging technology and took the early adoption approach to ensure constant and ongoing continuous improvement.

3.1.5 Innovation and leading research

Due to the gap identified with natural ingredient replacements, Arcadian was always required to be and lead the research into new functional ingredients and recipes, and to challenge and improve the status quo of its existing lines.

4. Results

4.1.1 NPD resourcing and process

Arcadian employed numerous technical resources to ensure effective products and research could be developed. These technical resources were master butchers, an innovation manager, head chefs,

a senior NPD technologist and food Chemist. Implementation of R&D planning tool is in use and reviewed on a weekly basis by the team members to ensure all products details are accurate and project is within the required deliverable timeframe. Along with the in-house built R&D Planning tool Arcadian also utilised the framework of Asana to liaise closely with its marketing team in marketing and the artwork review and approval process to ensure all team members are reviewing the same and current artwork and meeting the timelines for launch. As with any technical tool this is being continually reviewed and updated as required by Arcadian and the technical resource has changed over the project scope, but the wide variety of technical knowledge that has been gained from the technical resource with various backgrounds has helps update and improve the overall system.

4.1.2 Expanding Capabilities

Along with a lot of new products that have been developed and launched from the standard range or products produced at Arcadian site. They have also researched, developed and successfully launched into some new categories by utilising some 3rd party contract manufacturers.

- Snacking
 - Organic Beef Jerky – 3 Flavour varieties
- Convenience Meal
 - An Organic Beef Lasagne (First in Australia)
 - Organic Slow Cooked Beef Ribs in Peppery berry Sauce
- Smallgoods
 - Organic Beef Hotdogs (First in Australia)

Arcadian is still researching and developing further ranges with contract manufactures including further smallgoods and other snacking and convenience lines.

4.1.3 Market insight development

Arcadian closely follows retail and consumer trends and demands. Over the project Arcadian launched the following.

- a flexitarian sausage into the major supermarkets, all organic, giving our younger customers the ability to take in the required vitamins without having to eat something awful, the sausage is pleasant tasting mild flavour, supporting a 30% veg, and double the amount of meat.
- A range of paleo products (Paleo Beef Sausage, Paleo Honey Beef Chipolata's, Paleo Burgers and Paleo Meatballs), these were the first to the market and hit a growing demand from our Heath conscious and heath trend demanding clean label products inline with the "paleo" dietary requirements.
- Arcadian has also developed a new clean label FODMAP friendly Beef Sausages and Clean label FODMAP friendly Beef Burgers that uses all natural and pantry style ingredient and does not use any garlic, onion, starches or fillers as typically seen in both Sausages and Burgers that can lead to issues with some digestive issues with a proportion of the population. These products were deemed as good or better than the current target products in the market and hit a new consumer group that has limiting dietary requirements.

4.1.4 Technology Development

Arcadian has joined APCO and subsequently determined for the current best options for films was to convert and have approved as Redcycle and join as a Redcycle partner. All our current packaging has been assessed and we have converted all our films to Redcycle suitable films along with converting the labels to poly propylene based to comply with the Redcycle requirements. New ARL waste symbols have been added to our packs. We have calculated this change will result in previous 30T plastic that would have gone to landfill that is now recyclable. Ongoing we are working on improving sustainability in our supply chain and look at future options to reduce and remove plastic altogether.

Arcadian has also heavily invested in new technology in its process. New radio frequency technology in the thaw step of the red meat primals to ensure a more consistent and controlled thaw and took the thaw. The result is what would previously have been 2-3 days tempering utilising water in now done in 20-40 minutes.

A new Handtmann 620 pneumatic vein driven sausage filler, this has the capability of expressing 100% frozen formulation at -5 degrees, automatically this puts us in the long-life category for fresh sausages organic without preservatives, this also preserves the particle size during filling adding to the shelf-life expectancy.

To boost our capabilities in cutting steaks a Marel I cut 55 slicer, was installed to improve the fixed weight even slicing and shelf life ability's.

Along with adding new labelling applicators (Ravenswood) and new skin pack trays (Trave) to improve quality and appearance and the efficiency of the packing and labelling on the production lines.

4.1.5 Innovation and leading research

Sodium level across all products were reviewed to establish new lower goals to aim to be equivalent or better than the market leader. With all new products redeveloped to hit all the new targets.

There is a wide range of traditional shelf life enhancing products that provide fortification assist with reducing degradation, microbial growth and maintaining a better appearing product to meet consumers requirement. However, majority of these have been artificial or are naturally derived chemicals. As new research Arcadian undertook with extensive reviews, trialling, and shelf-life testing of some of the emerging natural and clean label shelf-life enhancers. The outcome identified a couple well performing products that have been rolled out on a couple limited products which typically struggle to hit shelf life and will be further rolled out to our standard range to enhance and potentially extend existing shelf life. The product is classified as either "natural flavour" or "fruit & spice extract" and is natural and approved for use in organic products. The benefit for the shelf life has been shown to allow Arcadian to extend up to from current.

Numerous marinades have also been reviewed and redeveloped to improve their functionality. After numerous trials and testing a new recipe that used powdered versions of the added ingredients that were in the sauce. We also added some further starches to help the adhesion of the marinade to the product. The resulting process improved the usability of the marinade in the production room as reduced the loss and mess to almost zero.

We also worked with our supply partners in sourcing options to improve our premixes, natural colours and yeast extracts have been removed and functional additives reviewed and added. For the functional many options did show some promise to deliver on the target but due to sourcing, we ended up opting for a blend of Maize starch, rice flour and tapioca flour, as we could source as organic certified and holds up to our pantry style clean label targets. The blend of the 3 also work well together to enhance different aspects of the products without having detrimental impacts on flavour or texture. The products show great improvements in reducing purge of fats and moisture during cook and have a much better mouthfeel and texture.

5. Conclusion

5.1 Key findings

The need for a dedicated NPD resource and well structured product development process allowed for the improvement, development and launch of new products. Expanding current capabilities of the company by utilising 3rd party manufactures to assist with filling some gaps in the market with products that were too far from the standard sites processing capabilities. Utilising market insight to give the consumers what they are wanting and utilising technology improvements to drive efficiency, quality and development. New innovation and research to problem solve issues as a way of continuous improvement for the products and the processes. Some key insights were simple changes or additives could be utilised to give a much better and more functional product along with pushing the limits of shelf life of the products by up to 40%.

5.2 Benefits to industry

The projects innovation target was to raise the perception of the red meat category with consumers and drive a higher value and better quality for the category. By focusing on innovation and utilising resourcing and research correctly Arcadian was able to deliver on new product developments that were well outside their standard scope and range that would traditionally have made, and allow branching into 3 new categories along with improving their products and lifting the quality and perception of the red meat sector.

6. Future research and recommendations

Key successes identified was to look beyond the normal process limitations with innovation and development, as all the hurdles and gaps found during the project with new products/processes we could utilise other processes expertise and production capabilities to contract manufacture for us.

Future R&D will continue in the new categories of snacking and ready meal solutions as they offer a much higher value for the industry.

Adoption of the natural style functional ingredients and shelf-life enhancers would aid in boosting customers perception of the red meat sector as the traditionally used E-Number functional additives, preservatives and modified starches does leave customers wondering what is going in their food.

7. References

Below is a snapshot of products developed over the 3 year period which were launched

