



Looking for red meat value adding innovation that meets your consumers' changing needs?

Looking to improve your returns from low value trims and primals?

Looking for a cost effective equipment innovation to keep your current value added red meat products relevant?

Meat Strip Alignment Technology *could be your answer*

Meat Strip Alignment Technology is an equipment innovation that aligns meat strips to produce a wide range of value added red meat products, such as dice and strips, steak-like products and roasts.

The alignment of the meat strips ensures consistent eating quality, which can be manipulated to increase or decrease texture to suit end user requirements.

The Meat Strip Alignment Technology equipment is designed to fit to the end of a meat pump, allowing for a continuous filling operation and removing the previously labour intensive process to produce a similar product.

Key benefits

1. New generation of value added red meat products
2. Improved returns on low value cuts
3. New retail market opportunities
4. New food service opportunities
5. New export opportunities

Introduction

The Australian red meat industry often uses non-steak cuts and trim to produce relatively low-value restructured products, because these pieces of meat are either too tough or the wrong shape or size to be sold as premium cuts.

The process for manufacturing restructured meats often involves very coarse mincing, to reduce collagen toughness (gristle) without excessive loss of meat structure, then mixing with a binder, filling into a casing and cooking.

The eating quality of restructured steaks, roasts and strips produced in this way is highly variable because the strips or meat pieces are randomly aligned within the products and large inconsistencies in toughness exist between the meat pieces that have been bound together. These two factors combine to produce an inconsistent and non-authentic bite.

The appearance of the product is also affected, making it obvious to consumers that it is a processed product. Therefore, Food Science Australia (FSA) and Meat and Livestock Australia (MLA) have undertaken a strategic research project to develop a process to improve the texture of restructured meat products by aligning the meat strips to create a product similar in texture to whole tissue meat when cooked.

MLA and FSA collaboration

Fibre alignment methods used in non-food industries were used to develop a process to produce fibre-aligned meat products that have a texture similar to whole tissue meat. The aim was to demonstrate a process, suitable for commercialisation, for manufacturing restructured meat products that simulate the appearance and eating quality of higher value cuts.

Research trials were conducted to determine the optimum meat particle size and to identify a binder, which not only reduced connective tissue toughness but would also allow the meat mixture to flow and align the meat particles. The larger pieces of meat were reduced in size in a manner that significantly decreased connective tissue toughness and also gave the meat particle a structure that could flow and align itself. A binding system was also developed to bind and assist the flow of the meat particles.

A prototype piece of meat strip alignment equipment was designed and built by FSA to promote the alignment of the meat mixture as it flowed through the prototype flow aligner. The purpose of the flow aligner was to align the meat strips as they flowed through the filler nozzles and into the filling chamber. The meat mixture was filled into a casing, which could be frozen and formed into a range of products, including roasts, steaks, strips and cubes.

Each of the products could be included in a number of meal formats suitable for either the food service or retail segments in both domestic and export markets.

The steak-like products would be suitable for gourmet burgers, barbeques and centre of plate meals.



Figure 1: Examples of meal solutions produced by the Meat Strip Alignment prototype utilising round and rectangular steaks.

The strips and cubes both have potential to be used in convenience meal formats and finger food applications. Meal options for both these products are illustrated below.



Figure 2: Examples of meal solutions produced by the Meat Strip Alignment prototype utilising strips and cubes.

Meeting consumer needs

The fibre alignment technology is a platform technology that can be modified to meet the requirements of the processor and the consumer by the application of know-how to the formulation and processing steps. A broad range of sensory profiles and formats can be generated from this platform technology. For example, the product can be enhanced with functional ingredients, such as bioactives, vitamins, minerals and omega 3 oils, to meet the needs of institutional markets such as hospitals and retirement or nursing homes. The texture of the product can be varied and the flavour modified through a variety of mechanisms, meaning that a range of products can be manufactured to meet the needs of retail and food service segments in both domestic and export markets.

Meat Strip Alignment Technology can help you meet the five drivers of consumer demand – integrity, enjoyment, nutrition, convenience and value for money – as illustrated in Figure 3.

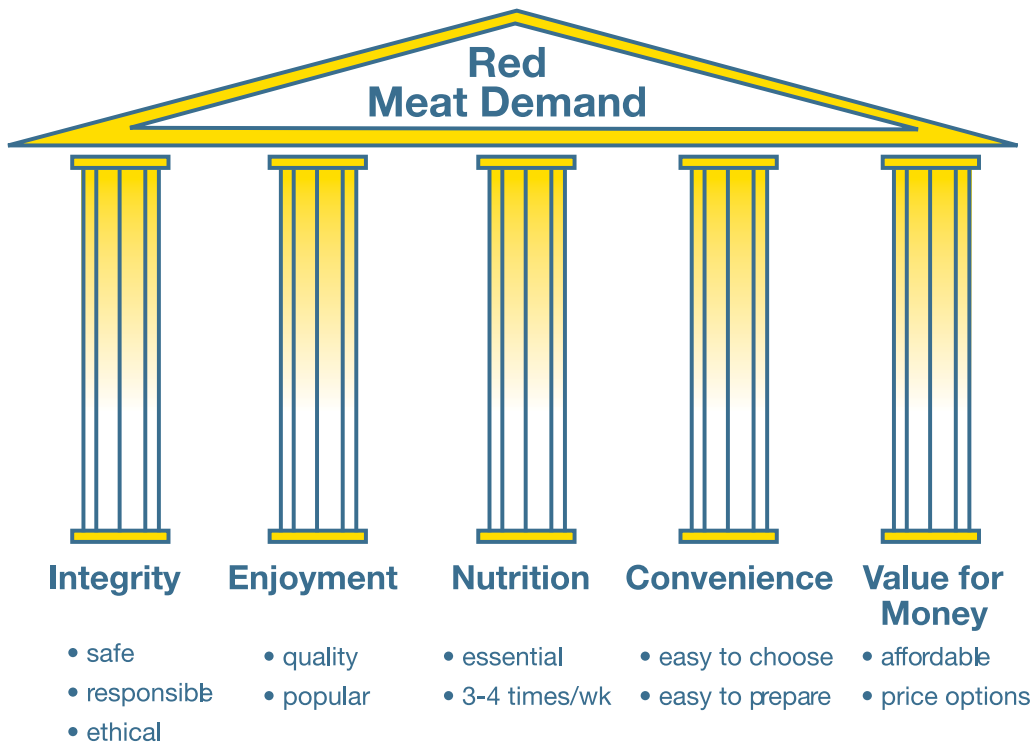


Figure 3: The five pillars of beef and lamb demand

Innovation support

The equipment and process has a patent pending, and MLA is currently commercialising this equipment innovation. The focus is to develop an attachment to an existing continuous meat pump to allow for cost efficient uptake of this innovation.

Benefits summary

- 1. New generation of value added red meat products:** The new continuous process to align meat strips paves the way for a potential product range including dices and strips, steak-like products and roasts suitable for retail, food service and export opportunities.
- 2. Improved returns on low value cuts:** Selected trims or low value primals can be used to generate value added red meat products.
- 3. New retail market opportunities:** Meat Strip Alignment Technology can generate unique product solutions to meet the changing consumer trends, such as increased demand for reduced fat products, functional foods, red meat meal solutions, consistent eating quality and value for money.
- 4. New food service opportunities:** Meat Strip Alignment Technology can generate unique product solutions to meet the needs of the food service industry, such as finger food solutions, portion cost control, reduced preparation time, functional food and flexibility of application in menu design.
- 5. New export opportunities:** Meat Strip Alignment Technology can generate unique product solutions for export markets, consistent eating quality, product integrity, portion control costs, functional foods, reduced fat and value for money.



Want to know more?

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