Snapshot Report

AMPC
AUSTRALIAN MEAT PROCESSOR CORPORATION

Warming the frozen meat supply chain

Reducing energy consumption and emissions (-18°C to -12°C)

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Project Description

Frozen foods are almost always stored and transported at -18°C but evidence suggests that meat products can be stored and transported at a warmer temperature (-12°C) without loss of quality or shelf life. Storing at a warmer temperature can save electricity costs and reduce carbon emissions throughout the supply chain. This project aimed to determine whether it was feasible to achieve a change to the temperatures used in international supply chains.

Project Content

The project aimed to explore the likelihood of success in warming the supply chain, document the benefits of doing so, explore how such a change could be achieved, and prepare documents that would help in achieving the goal.

The supply chain for frozen meat was explored, the reduction in energy costs and carbon emissions of changing the supply chain from -18°C or -12°C were calculated. Many stakeholders in the frozen supply chain were interviewed to understand their position and suggest a way that the industry could advocate for change. Documents were prepared so that the industry is in a good position to advocate for change.

Project Outcome

In recent years over 75% of meat (including offal) exported from Australia was frozen, with major markets being in North Asia and the USA. The North Asian markets have prescriptive domestic regulations, usually requiring product to be held at -18°C or below at all times. Both the temperature and the 'at all times' present a barrier to be overcome for Australian exporters. While we know that product can be stored at -12°C for long periods, we also need to consider the temperature increases that may occur in product for short periods during defrost cycles, or when product is moved from one form of storage/transport to another.

The Australian red meat industry is not alone in considering the idea of warming their supply chain. Unilever (Streets Ice Cream) has been conducting trials with their in-store freezers at -12°C. A report (*Three Degrees Of Change: Frozen food in a resilient and sustainable food system*) was prepared by the International Institute of Refrigeration and the Centre for Sustainable Cooling (with others) and launched in November 2023 at the Framework Convention on Climate Change (COP 28) promoting the benefits of warming the frozen food supply chain from -18°C to -15°C. An international industry group the 'Move to -15' coalition' formed in March 2024 with representatives from food producers through the supply chain to retailers and aims to explore the feasibility of a move to -15°C and advocate for change with governments.

Internationally, the most efficient way of achieving change could be through the Codex Alimentarius Commission, an international food standards setting body, that already has a *Code of Practice for the Processing and Handling of Quick Frozen Foods,* which admits (but does not emphasise) that temperatures above -18°C (up to -12°C) can be used. All of Australia's significant trading partners are members of the Commission, and working through this forum would allow member countries to be educated, explore the issues and build consensus for change.

The previously-conducted shelf life work has been prepared for publication in a scientific journal and will be peer-reviewed. Having a peer-reviewed scientific publication is almost a pre-requisite for the idea to gain credibility in the international community. Fact sheets have also been prepared on the shelf life, and energy and environmental implications of warming the frozen supply chain for Australian red meat. A project proposal has been prepared for the Codex Alimentarius Commission, but submission is dependent on a member country deciding to raise the issue in an organisation that has a long agenda.

Benefit for Industry

This project has estimated that relatively large savings in energy and carbon emissions could be made through the who supply chain by warming the temperature for frozen product from -18°C to -12°C. The Australian red meat

industry could save $2.5m pa annum by changing the freezing temperature from -18°C to -12°C, with additional savings on storage and transportation costs. A reduction in carbon emissions of about 11% would result from warming the temperature of the entire supply chain to the importing country to -12°C.

This project has also informed industry about the options open for cooperation with like-minded organisations to advocate for change, and draft documents that could be useful for introducing the topic to various audiences.

Useful resources

The shelf-life of Australian frozen red meat | Meat & Livestock Australia (mla.com.au)
The Move To Minus 15°C | Cold Chain Sustainability
The-Three-Degrees-of-Change_Summary-Report_November-2023.pdf (sustainablecooling.org)