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BEEF CATTLE RESEARCH COUNCIL

# RESEARCH FACTS

RESEARCH & TECHNOLOGY DEVELOPMENT FOR THE CANADIAN BEEF INDUSTRY

## Beef Science Cluster



## Storage life of vacuum packaged beef

Project Title:

Storage life of vacuum packaged beef

Researchers:

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**Project  
Code:**

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### Background:

Opportunities to trade Canadian beef to distant, overseas markets are increasing. Developing these markets requires demonstration of an adequately long storage life for Canadian product.

Trading to distant markets requires a minimum storage life of 90 days. Storage life of 120 days has long been attained by Australasian product, and a storage life of 160 days was recently claimed for Australian product. A long storage life is important to overseas importers because it allows them to store beef until retail demand is right, rather selling it as soon as it arrives by ship. The storage life of Canadian beef has not been well documented in either scientific or trade literature.

### Objectives:

To determine how long Canadian vacuum packaged beef stored at 2°C or -1.5°C would keep at a condition acceptable to consumers.

**Canadian vacuum  
packed beef stored  
at -1.5°C has a  
storage life of 130  
days or more.**

### What They Did:

Vacuum packaged bone-in and boneless cuts of beef were obtained from one plant, and vacuum packaged boneless cuts were obtained from two other plants. Cuts from each plant were stored at 2°C (the standard storage temperature for beef distributed within North America) and -1.5°C (the standard storage temperature for beef shipped to overseas markets). Three cuts were withdrawn from each group of cuts on the day cuts were received, and at 20 or 30 days intervals (up to 160 days) for testing. When opened, each pack was assessed for odour, and bacteria in the rinse fluid were counted. Three steaks were prepared from each cut. One steak was frozen and subsequently assessed for flavour. The two other steaks were displayed at 4°C and assessed daily for appearance and odour. Storage life was defined as the last sampling date before the stored beef was deemed unacceptable for any reason (odor, appearance or flavor).

## What They Learned:

Storage life for vacuum packaged beef from the different plants are shown in the Table below:

Plant	Cut Description	Useful Storage Life in Days	
		2°C	-1.5°C
B	Vacuum packed loin, bone-in	50	140
B	Vacuum packed strip loin, boneless	80	140
A	Vacuum packed strip loin, boneless	60	130
C	Vacuum packed top butt, boneless	140	160

Storage life for all cuts was longer at -1.5°C, the coldest temperature that beef can be stored without freezing. Boneless cuts had a longer storage life than bone-in cuts; the spoilage of the bone-in cuts was due to odors associated with the exposed bone marrow. Cuts from plant C had the longest storage life at both temperatures, and cuts from plant C that were stored at -1.5°C were not spoiled after 160 days.

## What it Means:

If Canadian vacuum packaged beef is held at -1.5°C during distribution to distant markets, as is usual in such trades, the product should generally attain the storage life required by customers.

At least one plant is producing vacuum packaged beef with an exceptionally long storage life. The microflora on product from this and other plants will be analysed to identify the factors that determine long storage life.

Market recognition that Canadian vacuum packaged beef can attain a very long storage life could be an important tool in developing overseas markets.

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