



# National Check-Off Evaluation

2016 Update

## QUESTIONS & ANSWERS

The Canadian Beef Cattle Check-Off provides industry funding for the Beef Cattle Research Council (BCRC) responsible for the industry's national research program; and Canada Beef tasked with market development and promotion in domestic and international markets.

### 1. Why was the study “Evaluating the Economic Benefits from the Canadian Beef Cattle Check-off” initiated?

The Canadian Beef Cattle Research, Market Development and Promotion Agency (also known as the Canadian Beef Cattle Check-off Agency) had completed the first comprehensive evaluation of returns to check-off dollars in March 2010, reporting on fiscal years 2005/06 to 2007/08. After the formation of Canada Beef, the board made a commitment to update the study every five years to provide greater transparency and accountability back to producers.

As industry has adapted to the changing landscape, the Canadian Beef Cattle Check-off Agency wanted to address key questions including producer benefit cost ratio; the extent to which check-off funded investment has affected the industry's competitiveness and demand for Canadian beef; and optimal allocation of funds.

Since the first study, there have been a number of structural changes within the industry.

1. The development of the Beef Cattle Science Cluster;
2. The merge of the Beef Information Centre (BIC), the Canadian Beef Export Federation (CBEF) and the National Check-off Agency into Canada Beef; and
3. The introduction of the import levy.

### 2. When was the study initiated and completed?

The Canadian Beef Cattle Check-off Agency decided to proceed with an independent review of the Canadian beef cattle check-off in September 2015. Dr. John Cranfield who had completed the first study in March 2010 was approached to do the updated but was unavailable. Three other agricultural economists with experience in this type of modeling were recommended by Dr. Cranfield and approached about the project. An agricultural economist was selected January 2016 and the study was completed June 2016.

### 3. Who did the study?

The Canadian Beef Cattle Check-off Agency is comprised of industry representatives across Canada and is legislated under the federal *Farm Products Agencies Act*. Canfax Research Services (CRS) was commissioned to oversee the work. The study author is Dr. James Rude who is a professor in the Department of Resource Economics, University of Alberta. Violet Muringai assisted Dr. Rude with the study and Dr. Ellen Goddard contributed brand data and analysis.

### 4. What are the key findings from the study?

A marginal BCR greater than one indicates the last dollar of investment returns more than \$1 in benefits. Large BCRs is a sign of under-investment and the agency should invest more to lower the BCR to closer to one without reducing it below the target of unity.

The study reports that on average from 2011/12 to 2013/14, every check-off dollar invested in national research and marketing activities resulted in \$14 of benefit for Canadian cattle producers (that is a benefit cost ratio or BCR). This is up from the \$9 average between 2005 and 2008.

- **Research** had a BCR of \$34.5, down from \$46 in 2005-08.
- **Marketing** had a BCR of \$13.5, up from \$7.55 in 2005-08.





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In addition, the average benefit cost ratio grew steadily between 2011 and 2014. This implies that despite positive benefits, there has been under-investment in research and marketing activities for the Canadian beef cattle industry.

It should be noted that there is generally an inverse relationship between the amount of money spent on a promotion or research activity and its marginal BCR. This is due to what economists refer to as “diminishing marginal returns” which means as more and more money is spent on an activity, the marginal or incremental gains from it increase at a decreasing rate. This concept helps explain why as investment has increased for research over the last five years that the BCR has declined;<sup>1</sup> and as marketing dollars have declined the BCR has increased.

When the marketing investment was initially shocked (that is reduced) it caused retail beef prices to decline by roughly 13% while overtime the decline modifies to 5% before declining back to 9% at the end of the simulation period. This reduction in beef prices translates initially into a one percent decline in steer prices which gradually grows to 3% toward the end of the simulation period. It is this gradual decline in farm level prices (and the associated feeder calf price) which primarily reduces farm level benefits. Hence, the higher BCR to marketing is partly due to reduced investment.

The researchers noted that it is difficult to speculate about the large increase in BCR to marketings in the 2013/14 fiscal year. It is unclear on if this is driven by reduced check-off dollars or if it reflects post-organization adjustments after the merge into Canada Beef. A longer time period post-merge is needed to establish whether or not there is a structural change in the response to the new approach to marketing and promotion activities.

### **5. What was the methodology to calculate benefit cost ratio?**

The analysis in this study uses an econometric simulation model that mimics the workings of beef and cattle markets in Canada the United States, and explicitly accounts for the impact of Canadian cattle producer investment in beef-cattle marketing and research activities on prices and quantities in these markets. The model enables one to calculate retail and farm level prices, final consumer demand for beef, production of beef, packer demand for cattle, supply of fed and non-fed cattle, and beef and cattle trade (both between Canada and the U.S., and between Canada and the rest of the world) for a baseline situation and under a variety of “what-if” scenarios. The baseline situation reflects what actually happened in these markets and is used as the basis of comparison for the different “what-if” scenarios. The “what-if” scenarios allow one to determine the retail and farm level prices and quantities (i.e. demand for beef, beef production, slaughter, cattle supply and trade volumes) that would result if investment in beef-cattle marketing and research activities was different from the actual level of investment. Once these prices and quantities are determined, they are used to calculate producer benefits associated with the respective “what-if” scenario and compared to the baseline level of producer benefits.

Refer to the full study available at <http://www.canadabeef.ca/national-check-off/> for detailed information on benefit-cost ratio methodology, calculations, and data sources).

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<sup>1</sup> The researcher noted that this study tended to produce lower BCRs for research investments than the 2010 study by Cranfield. This may be an artifact of the model, but it may also reflect higher research expenditures and more successful research expenditures in the latter period. More successful research indicates that while the BCR declined it is unclear on if it would have declined further if BCRC had simply invested more in what they had previously been doing (prior to 2008); but since they changed what they were investing in (a comprehensive National Beef Research Strategy) the decline may be smaller than what otherwise have been seen due to a higher BCR on these different investments.



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### 6. Were there changes to the methodology from the last study?

While using the same overall framework, Dr. Rude did make some changes to the methodology used in the previous study.

First, Cranfield had used a net export approach (where net exports equal Canadian exports to country X less Canadian beef imports from country X). Rude estimated import demand for Canadian beef directly, in each country. This model specification allows for the assumption that Canadian beef is not a perfect substitute for U.S. beef (something justified in the context of US COOL regulations and also due to different industry regulations on specified risk materials) or Australian beef (differentiating between grain- and grass-finished beef). It is assumed that higher import demand results from increased promotion should increase trade leading to higher beef and cattle prices<sup>2</sup>.

Second, private branded advertising expenditures were included in the domestic demand equations. The private brand advertising expenditures were obtained from Nielsen Media Research from 1990 to 2014. When these private branded expenditures were included in the Canadian per capita beef demand equation the variable was not statistically significant and its inclusion did not significantly affect the size or significance of other explanatory variables in this equation. This may have been due to the small and sporadic amounts invested in private advertising.

Third, with respect to domestic marketing activities Cranfield only considered direct expenditures associated with promotion and research but excluded administration and operating expenses. Cranfield used a bottom up approach adding up individual activities. Rude employed a top down approach that subtracted administrative and operating expenses, not directly related to activity in question from total expenditures. While this second approach is cruder, it was difficult to track individual expenses after the merger of BIC, CBEF and Check-off Agency into Canada Beef. Furthermore, this approach provided a consistent accounting of the major expenditures over time as reporting procedures changed. These changes were consistently applied to the data from 1990 to 2014.

Rude (2016) compared the updated model results for the period FY05/06 to FY07/08 as reported in Cranfield (2011). The BCRs were very close for that period in both models. This provides some reassurance in interpreting the changes between Cranfield (2011) and Rude (2016) for FY11/12 to FY13/14. Given the similarity of results between the two models, during the earlier period, there is confidence that the results from the later period were due to fundamental changes in the market and investment expenditures and not model driven differences.

### 7. How does the Canadian beef cattle benefit cost ratio compare to Australia and the U.S.?

Canada's beef cattle check-off benefit cost ratio of \$14 for every dollar invested (14:1) is higher than Australia (6.2) and the United States (11.2). BCRs in Australia and the United States have both increased since their last study, indicating under-investment.

The most recent review of the U.S. check-off (2014) showed an average return of 11.2:1. From 2006 to 2013, the Cattlemen's Beef Board's (CBB) promotion activities increased total domestic beef demand by 15.7 billion pounds in total, or 2.1 billion pounds per year. In other words, had there been no CBB funded domestic marketing activities, domestic beef demand would have been 11.3% lower than it actually was.

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<sup>2</sup> It is a recognized limitation that the modelling approach used in this study, and the previous Cranfield study, involves a blunt instrument which models very aggregated markets instead of subtleties that can come from change in marketing focus from commodity beef to differentiated and branded beef.



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Meat and Livestock Australia’s 2010/11-14/15 impact assessment found an estimated benefit cost ratio (BCR) of 6.2:1 to red meat.

By program area:

- Market access provided a BCR of 14.8:1
- Growing demand provided a BCR of 5.2:1
- Productivity provided a BCR of 4.5:1
- Integrity/Sustainability provided a BCR of 3.8:1

By Industry sector:

- Grass fed cattle BCR 8.8:1
- Grain fed cattle BCR 4.1:1
- Processing BCR 3.0:1 (includes sheep/goats)
- Live Exports BCR 7.8:1 (includes sheep/goats)

### 8. How does the Canadian check-off compare to other major beef-producing countries?

In comparison to other countries Canada has a smaller beef check-off to invest in marketing and research at \$7.5 million in 2015/16. Australia, New Zealand and the U.S. all have beef check-offs, none of which are refundable.

Country	Check-off levy	Applies to imports?	2013/14 Revenue (millions)
Canada beef	C\$1 per head marketed	Yes	CDN\$7.9
Australia beef	A\$5 per head marketed	No	A\$106
New Zealand beef	\$4.40 per head on cattle slaughtered	No	NZ\$10.567
U.S. beef	US\$1 per head marketed	Yes	US\$40.5*

\* States retain up to 50 cents on the dollar and forward the other 50 cents per head to the Cattlemen’s Beef Promotion and Research Board, which administers the national checkoff program, subject to USDA approval.

### 9. How does the Canadian beef cattle benefit cost ratio compare to other agricultural commodities?

The “benefit-cost ratio” is the most common analysis used in check-off studies for agricultural commodities. In the simplest terms, it is an indication of how much has been earned for what was spent.

The BCR for Canadian beef cattle check-off at 14:1 is on the high end of the range of values for returns to marketing and research reported in previous studies for other regions and commodities. Recent studies on benefit-cost ratios for other commodities range from 1.73:1 (Cheese) to 20.19:1 (Pulse). In addition to cheese and pulses, other commodities examined included U.S. pork. *See Cranfield 2011 for a more robust list of commodities and regional BCR studies.*

Region	Commodity	Time Period	BCR	Source
US	Pork	2006-2010	8.0:1	Kaiser (2012)
Canada	Cheese	2007-2011	1.73:1	Doyon & Cranfield (2013)
	Fluid Milk	2007-2011	4.51:1	
Canada	Fresh Produce	projection	4.7:1 to 9.1:1	The Conference Board of Canada (2013)
Canada (Sask)	Pulse	1984-2024 projection	20.19:1	Gray et al. (2008)

### 10. Will this study be used as a benchmark going forward?

Yes, this is the second comprehensive study evaluating the economic benefits of the Canadian beef cattle check-off, looking at both research and marketing. It is expected that the information will be updated in the future to provide cattle producers with an indication of their return on investment and to assist with future check-off planning.

### 11. Was the study done to make the case for an increase in the Canadian Beef Cattle Check-off?



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No, the study was initiated to obtain an independent evaluation of the economic benefits from the Canadian beef cattle check-off.

It provides the second analysis of national check-off-funded expenditures since the levy came into effect. Other major beef producing countries such as Australia, New Zealand and the U.S. regularly review their check-offs.

While the Canadian Beef Cattle Check-off provides the core industry funding for BCRC and Canada Beef it does not fully cover the costs of all programs and activities. Supplementary funding is obtained by leveraging the national check-off, attracting on average \$3 for every \$1 for research and \$1 for every \$1 for marketing.

The results imply that there has been under investment in marketing and research activities; and that in order to maximize producer benefits investment should be increased. Moreover, the extent of this under investment has been larger for research activities than for marketing activities. However, investment in research has increased with the Beef Cattle Science Cluster while investment in marketing has declined with the end of the Canadian Cattle Market Development Fund (aka the Legacy Fund).

### 12. How do the Canadian Beef Cattle Check-off dollars get allocated between research and marketing?

The provincial beef cattle organizations determine how they want the Canadian Beef Cattle Check-off allocated to marketing and research. Therefore, the allocations do vary by province. In the study period (2011/12 to 2013/14), the ratio of investment in marketing to research was 86:14 (86 per cent to marketing and 14 per cent to research).

Province	Provincial levy per transaction/head	Allocated to province	Allocated to NCO	NCO Allocation
British Columbia	\$3.00	\$2.00 (refundable)	\$1.00	90% to CB; 10% to BCRC
Alberta	\$3.00	\$2.00 (refundable)	\$1.00	80% to CB; 20% to BCRC
Saskatchewan	\$3.00	\$2.00 (refundable)	\$1.00	70% to CB; 30% to BCRC
Manitoba	\$4.00	\$3.00 (refundable)	\$1.00	85.5% to CB; 7% to BCRC; 7.5% provincial initiatives
Ontario	\$4.00	\$3.00 (non-refundable)	\$1.00	32.6% to CB; 17.4% to BCRC; 50% provincial initiatives
Quebec	\$5.04/calf to \$13.79/ cull cow		\$1.00	3.0% to CB; 97% provincial initiatives
New Brunswick	\$3.00	\$2.00 (non-refundable)	\$1.00	10% to CB; 90% provincial initiatives
Nova Scotia	\$3.00	\$2.00 (non-refundable)	\$1.00	2% to CB; 10% to BCRC; 88% provincial initiatives
PEI	\$4.00 at slaughter only	\$3.00 (non-refundable)	\$1.00	2% to CB; 98% provincial initiatives

\* In B.C., Alberta, Saskatchewan and Manitoba the provincial portion of the levy is refundable.

The complete study “Evaluating the Economic Benefits from the Canadian Beef Cattle Check-off” is available on the Canadian Beef Cattle Check-off website at <http://www.canadabeef.ca/national-check-off/>