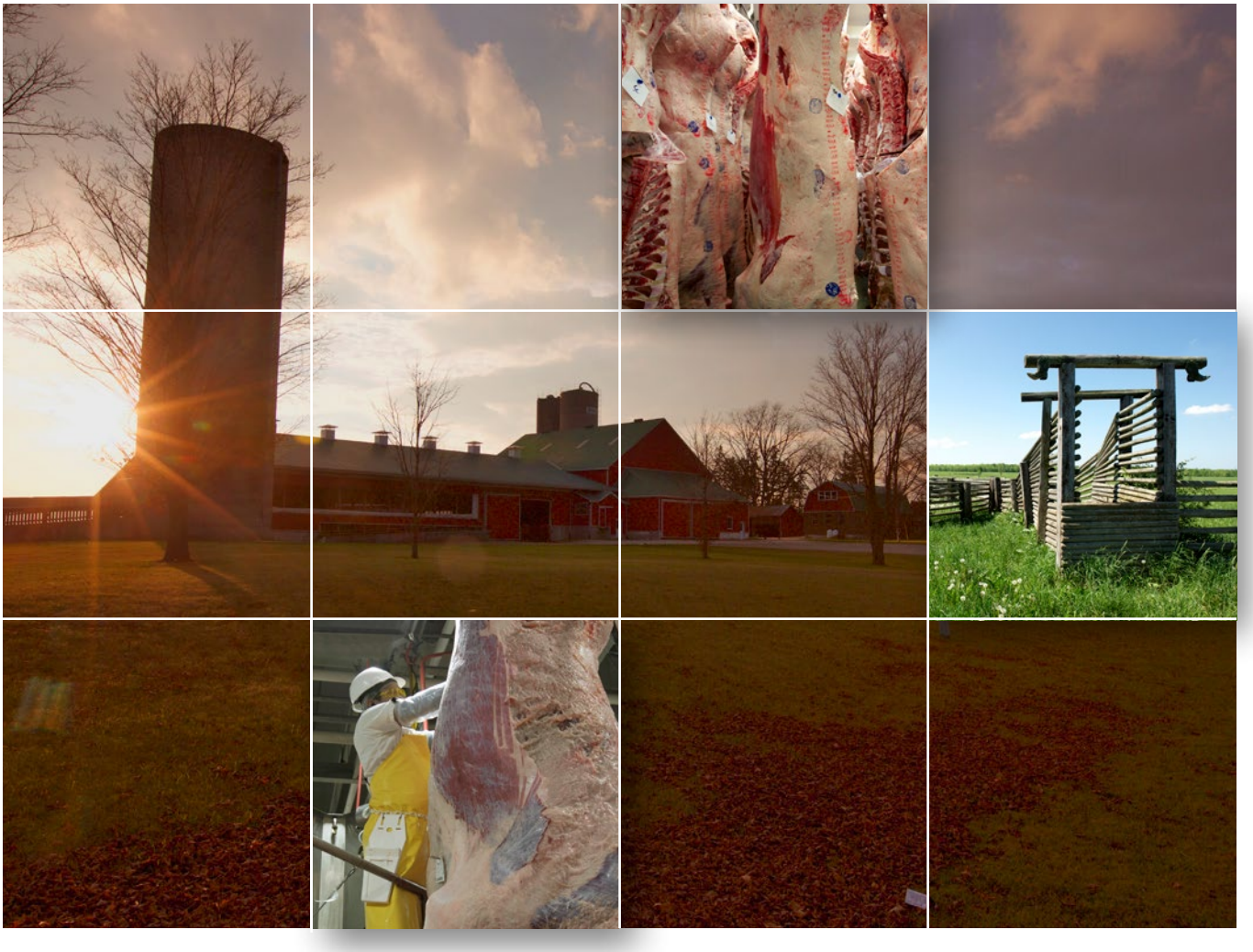
March 2018

National Beef Quality Audit
Benchmarking Progress



An Executive Summary for the Canadian Beef Industry

BCRC BEEF CATTLE RESEARCH COUNCIL

VBP+ VERIFIED BEEF PRODUCTION PLUS

Growing Forward 2
A federal-provincial-territorial initiative
Canada

CANADIAN BEEF CATTLE CHECK-OFF

CCA CANADIAN CATTLEMEN'S ASSOCIATION

A History of Progress

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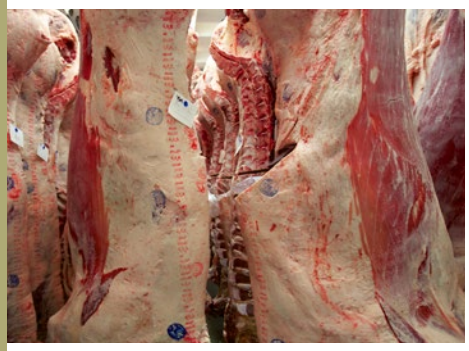
Canada's National Beef Strategy Vision and Mission

Vision: A dynamic profitable Canadian cattle and beef industry.

Mission: To be the most trusted and competitive high quality beef cattle producer in the world recognized for our superior quality, safety, value, innovation and sustainable production methods.

Introduction

Processing Floor Audit



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Conclusions and Next Steps

Progress through National Beef Quality Audit

Beef quality and food safety are important market demand and trade issues for the Canadian beef industry. In 1994/95, industry stakeholders adopted a mission to have *Canadian beef recognized as the best for quality and safety in the world*. To achieve that goal, baseline information on the kind of beef currently being produced was required, so that strategies to achieve improvement could be identified. Quality must be measured in order to be managed.

Therefore, the management committee of the program initiated the first National Beef Quality Audit (NBQA) study in 1994, examining processing floor defects to determine shortfalls in the current beef production system that could be addressed by the producer. The management committee consisted of major stakeholders in the beef industry, from pasture to plate, and its function is to oversee food quality and safety projects. The objectives were four-fold.

1. To determine the prevalence of "producer manageable" quality defects in Canadian cattle.
2. To estimate the economic losses incurred from these defects.
3. To identify strategies to reduce nonconformities.
4. To disseminate the findings to all interested parties.

Recognizing that successful management depends on accurate measurement, the NBQA continues to provide an industry-wide scorecard to provide direction for improving quality and value across all sectors. This is achieved by the industry addressing shortfalls and nonconformance issues that negatively impact beef demand. The audits completed over the last 24 years show the industry has made substantial progress in improving beef quality. **As the cost of production defects rises over time with labour and inflation, there is pressure for industry to continue making improvements** in order to minimize those costs and negative perceptions from consumers.

In total, four audits have been conducted since 1994. Assessing data from eastern and western Canada, an audit was conducted in 1994/95, 1998/99, 2010/11, and 2016/17. The Canadian beef industry did not complete an audit in 2004/05, resulting in a ten-year gap between the second and third audits. This was a decade of significant change in the industry. Consequently, the 2010/11 audit re-established benchmarks and communications on processing floor defects. In order to facilitate the historical comparison all values presented in this report are adjusted for inflation (with 2016/17=100) and therefore, do not match the values referenced in previous publications.

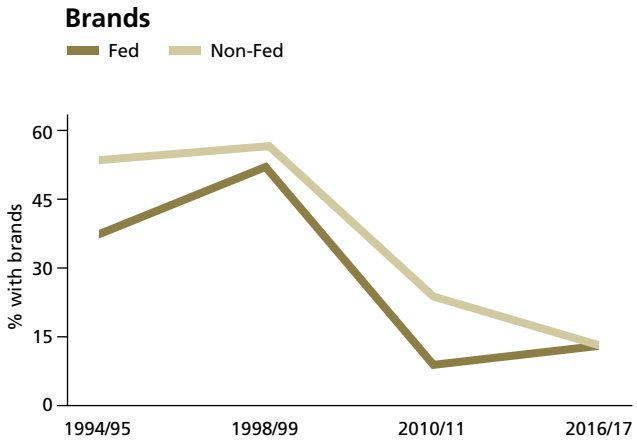
The initial 1994/95 audit revealed a number of quality defects on the processing floor and in the cooler. Responding to the findings of the first audit, an extensive education program was implemented. Good production practice binders and fact sheets on nonconformities and how to reduce quality defects were developed. These were given to producers across the country to provide information to help them improve management practices and reduce nonconformities.

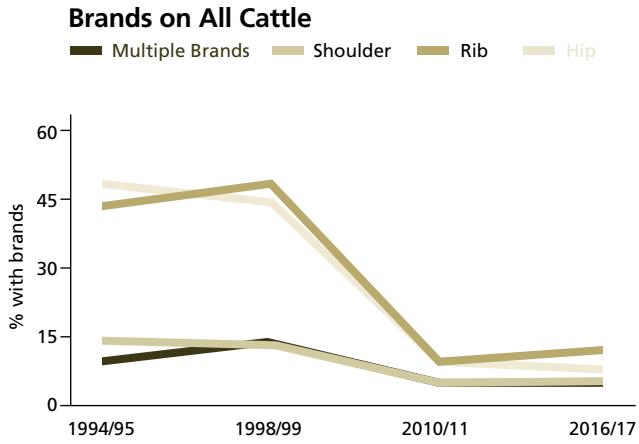
Processing Floor Audit

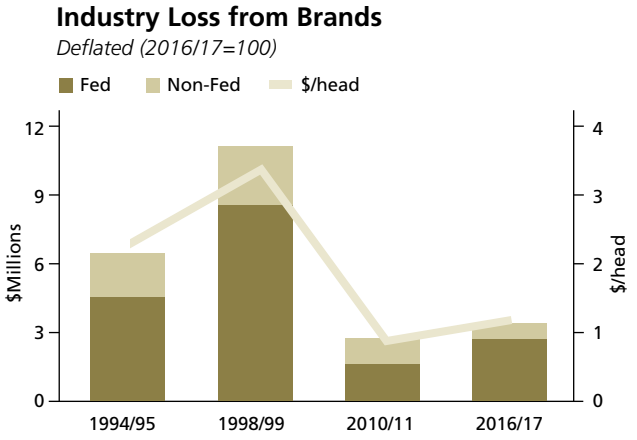
Two areas where substantial progress has been made since 1998/99 are reducing the frequency of **brands** and **horns**.

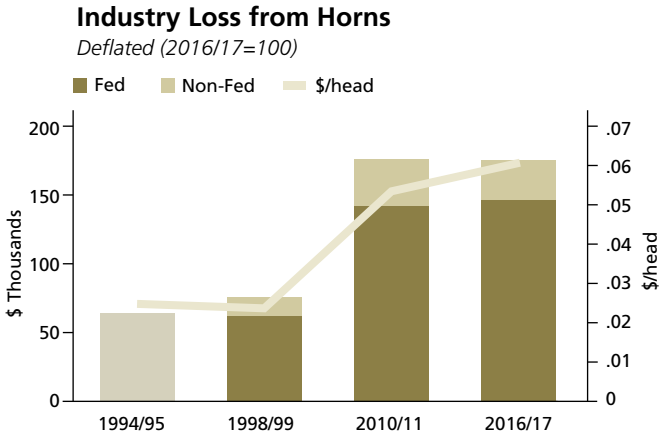
Brands are used as a permanent form of animal identification for identifying stolen or lost cattle and determining animal ownership. If cattle must be branded, it is recommended to use a single iron, and to use a shoulder or hip brand rather than a rib brand, to reduce hide losses. The number of cattle with brands has dropped from a high of 50% in 1998/99 to 12.6% in 2016/17. The biggest impact has come from the reduction in hip and rib brands. Rib brands, located in the middle of the hide and resulting in the largest discount, dropped from a high of 48% in 1998/99 to a low of 5.5% in 2010/11 but have increased slightly in 2016/17 to 8.1%.

Not only have prevalence rates declined for brands, but the economic cost per head has dropped from a high of $3.40/head in 1998/99 to around $1/head in 2010/11 and 2016/17. This has meant that the industry loss from brands has dropped from a high of $11.2 million in 1998/99 to $3.1 million in 2016/17 (all values presented are adjusted for inflation with 2016/17=100).



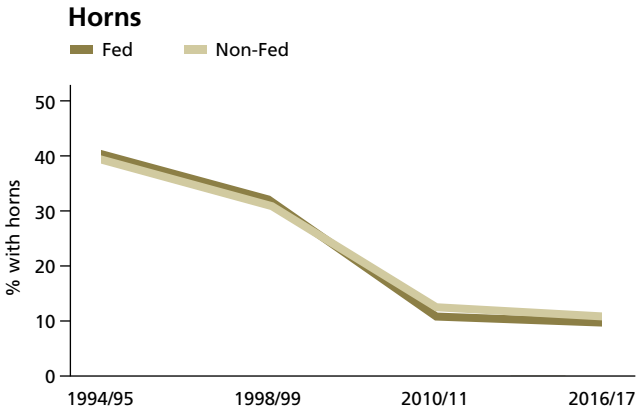


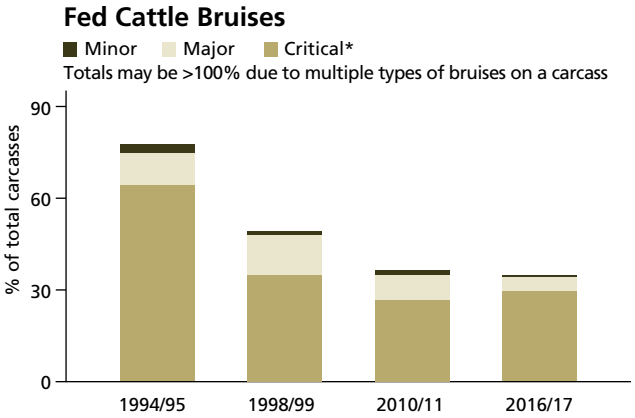


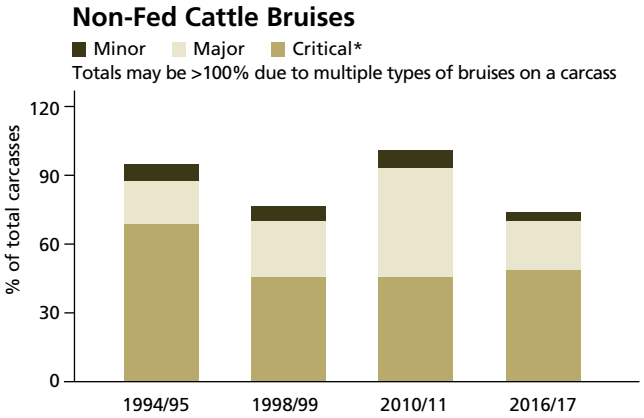


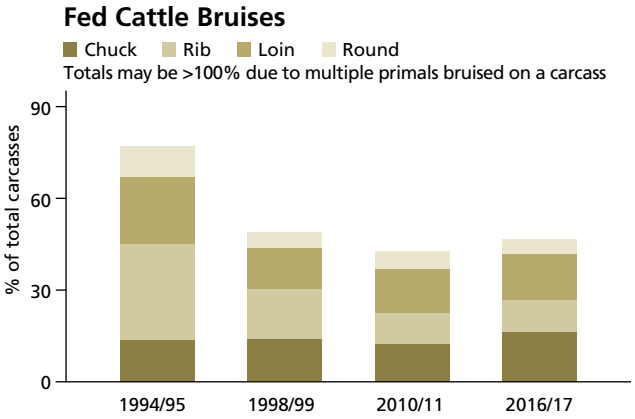
The proportion of all cattle that have **horns** at slaughter (scurs, stubs, tips or full horns) has dropped from 40% in 1994/95 to 9.5% in 2016/17. Despite reduced prevalence rates, the industry loss from horns has increased from $65,500 in 1994/95 to $176,000 in 2010/11 and has been relatively steady since. Horns also contribute to economic losses through bruising. While the frequency of horns has decreased substantially over the past two decades, the frequency of bruising is slowly following.

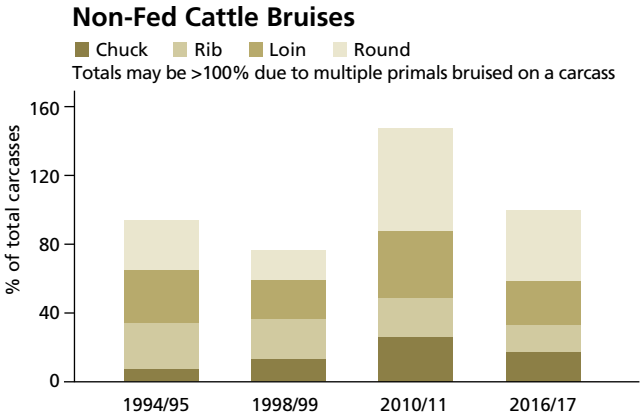
Non-fed cattle tend have a higher proportion of **bruises**, but they have dropped from 94% in 1994/95 to 63% in 2016/17. In addition, non-fed cattle have a higher amount of major and critical bruising. In 2010/11, there was a significant increase in bruises found on the round primal (60% of carcasses); this declined in 2016/17 but remains high (41.5% of carcasses). The loin is the next most frequently bruised primal on non-fed cattle.











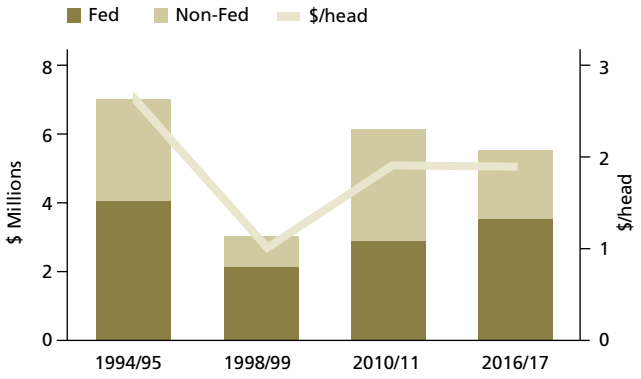
Processing Floor Audit *(continued)*

The prevalence of bruises on fed cattle steadily declined from a high of 78% in 1994/95 to 32.6% in 2016/17. This has come from a decrease in minor bruises to under 30% of fed carcasses. In addition, major and critical bruises have dropped from a high of 14.7% in 1998/99 to 5.4% in 2016/17. The loin and the chuck are the most frequently bruised primals with the loin being a high valued middle meat, therefore representing significant economic losses.

Industry losses from bruises have ranged between $5.5-6.1 million over the last 2 audits. This is down from the high of $7 million in 1994/95.

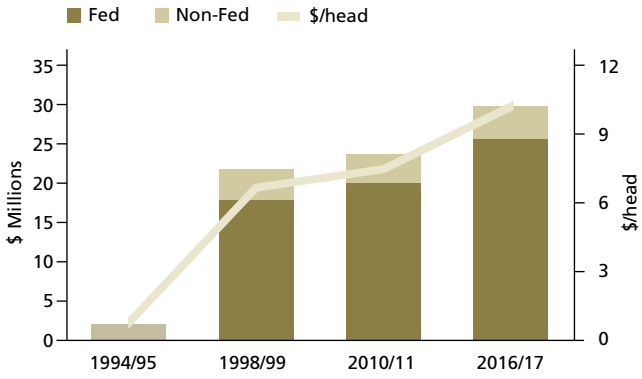
Industry Loss from Bruises

Deflated (2016/17=100)



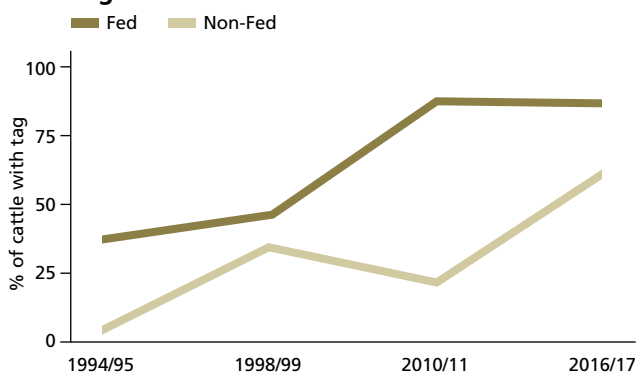
Industry Loss from Tag

Deflated (2016/17=100)

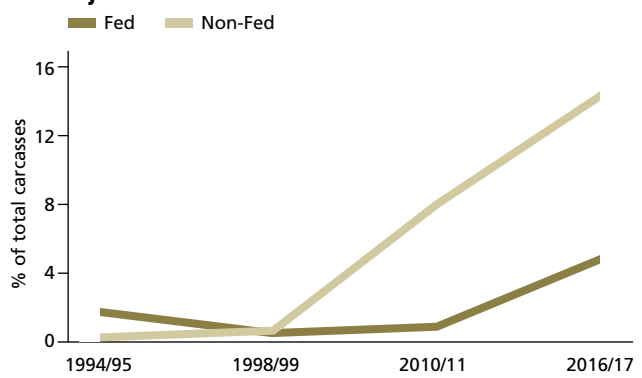


Tag is the manure and mud on the hide of an animal. Tag damages the hide and results in contamination of the carcass during removal of the hide. Tag on both fed and non-fed cattle has been increasing since the initial audit in 1994/95. Both the 2010/11 and 2016/17 audits occurred when weather conditions were extremely wet in the fall and feedlot pens were in poor condition. It was difficult for producers to clean because of the weather. While non-fed cattle in general have a lower proportion of tag, due to housing differences, wet conditions have also impacted pasture conditions. The cost of tag ranged between $20-30 million over the last 3 audits; with per head costs typically higher on fed cattle than non-fed cattle.

Tag



Injection Site Lesions

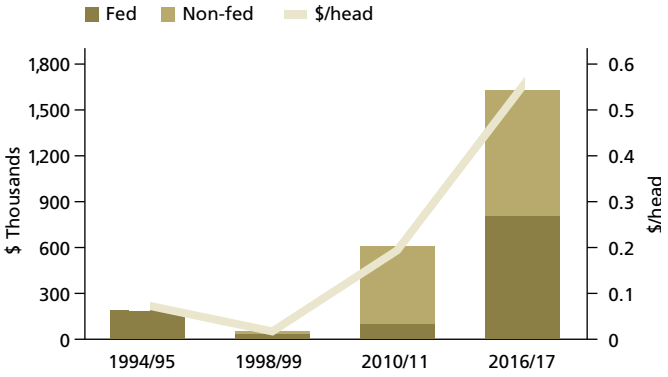


Injection site lesions were found on less than 2% of carcasses in 1994/95 and 1998/99, but the occurrences have increased significantly since then. Lesions were found on 4.45% of fed carcasses and 13.7% of non-fed carcasses in 2016/17. This could be attributed to the increased use of dart guns to treat cattle on pasture, as minor injection site lesions are found in the shoulders of both fed and non-fed cattle.

With the substantial increase in injection site lesions, the industry loss has increased from $201,000 in 1994/95 (fed/non-fed breakdown unavailable) to $1.63 million in 2016/17. The cost per head increased from $0.07/head to $0.56/head.[1]

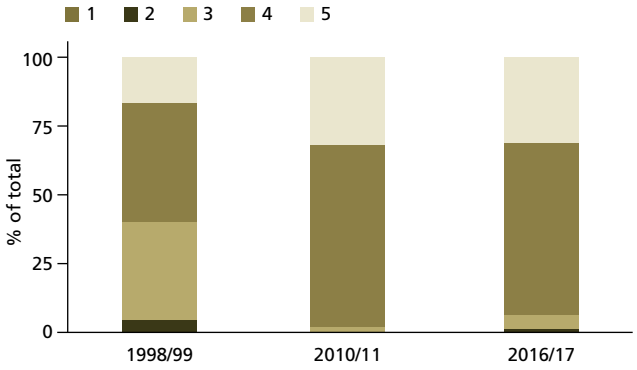
Industry Loss from Injection Site Lesions

Deflated (2016/17=100)

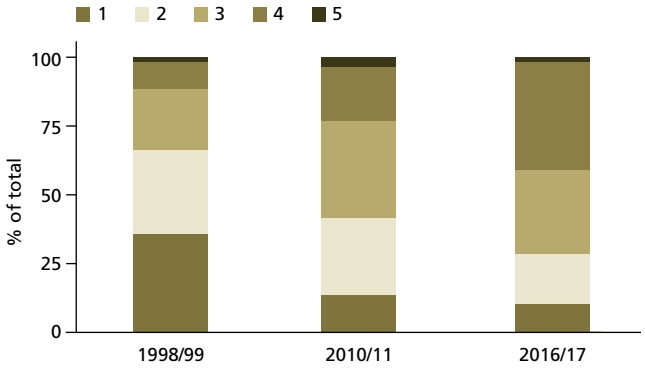


In the 1998/99 Audit, **Body Condition Scores** (BCS) were included. The average BCS for non-fed cattle was a disappointing 2.11 with 36% of non-fed cattle having a score of 1 or Thin; this has increased to 3.04 in 2016/17 to now be in-line with recommendations and only 10% having a score of 1 or thin. In contrast, the number of non-fed cattle that have a BCS of 4 has increased from 10% in 1998/99 to 40% in 2016/17. Fed cattle BCS have been more stable but have also increased from 3.72 in 1998/99 to 4.23 in 2016/17. The proportion of fed cattle identified with a BSC of 3 has decreased from 35% in 1998/99 to 5% in 2016/17 and may indicate over finishing as feedlots focus on marbling and quality grades (see cooler audit for more details).

Fed Cattle Body Condition Scores



Non-Fed Cattle Body Condition Scores



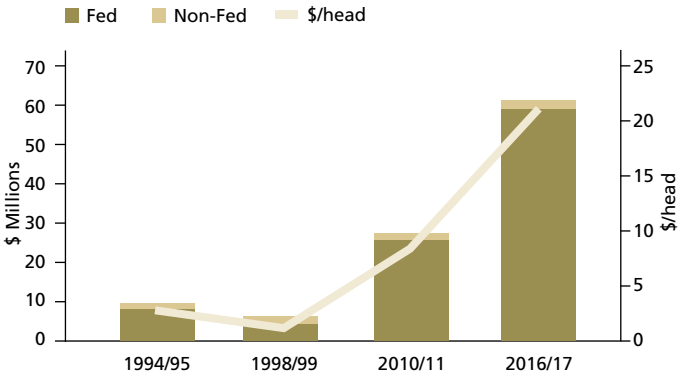
[1] The cost of injection site lesions for the 1994/95 and 1998/99 audits was revised to be consistent with the 2010/11 and 2016/17 audits. Therefore, these values do not match historical publications.

Processing Floor Audit *(continued)*

The percentage of **livers** used for human consumption has fallen from 70% in 1994/95 to 66.4% in 2016/17. This has come from an increase in condemned livers (15.3% to 22%) while livers discounted to pet food have declined (14.3% to 11%). The 2010/11 Audit reported a significant increase in A+ livers that were condemned and also are known to negatively impact feedlot performance. This resulted in increased investment in research and collaboration between feedlots and veterinarians. The ELANCO scoring system changed for the 2016/17 audit with A- and A livers combined into a single A category.

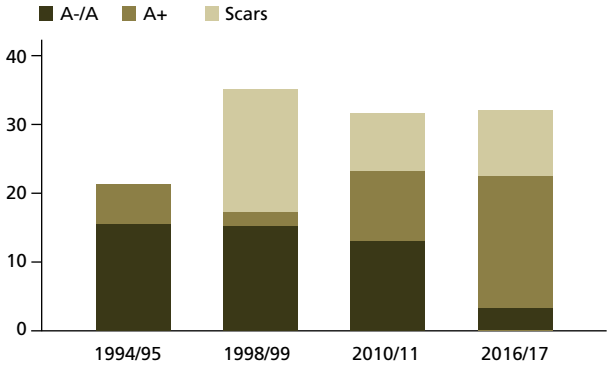
Industry Loss from Liver Discounts

Deflated (2016/17=100)

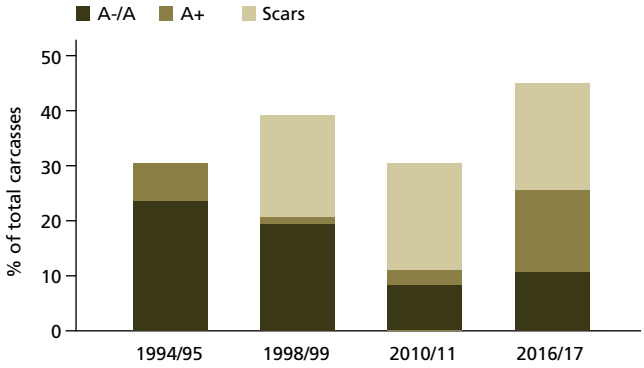


The industry loss from liver discounts continues to climb from a low of $9.5 million in 1998/99 to $61 million in 2016/17. The largest factor in this calculation is a lower rate of gain at the feedlot representing 34% and 76% of the totals respectively.

Fed Cattle Livers

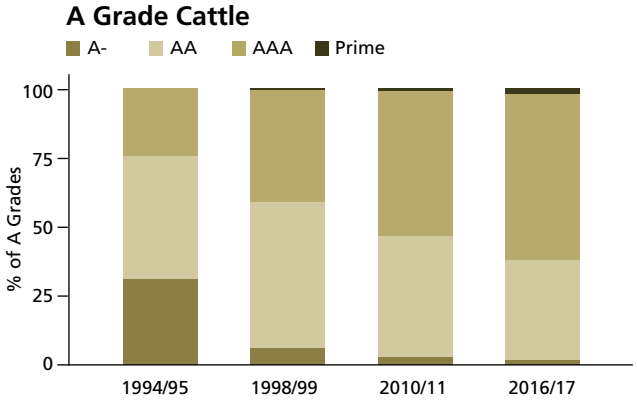


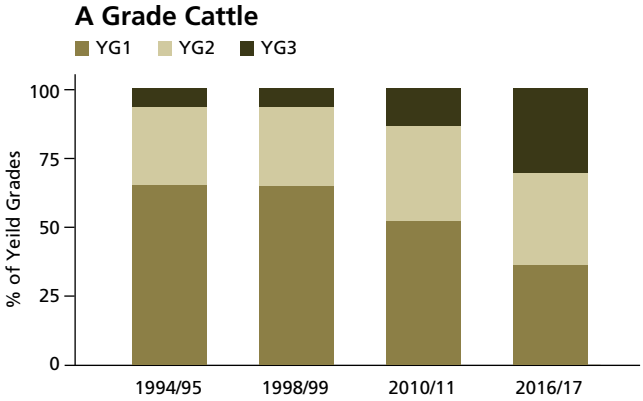
Non-Fed Cattle Livers



Cooler Audit

The Canadian Beef Grading system was revised in April 1992 to better reflect consumer demand for marbling. In 1994, only 24% of A grade cattle were AAA, and this has increased to 60% in 2017. The number of cattle which graded Prime has increased from 0% in 1994 to 1.9% in 2017. At the same time, fed cattle with a yield grade of Canada 1 (YG1) has decreased from 65% in 1994 to 36% in 2017; while fed cattle with a yield grade of Canada 3 (YG3) has increased from 6.8% in 1994 to 30.4% in 2017.





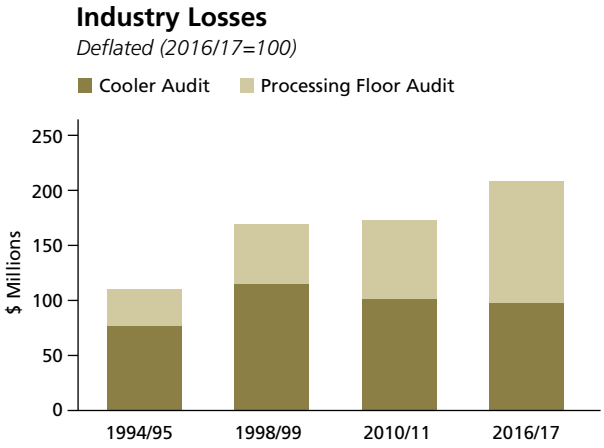
The number of B4 cattle as a percentage of Maturity 1 cattle has increased from 1% in 1994 to 1.64% in 2017, while the number of D4 cattle as a percentage of all D grades has declined from 10% in 1994 to 4.4% in 2011 and 2017.

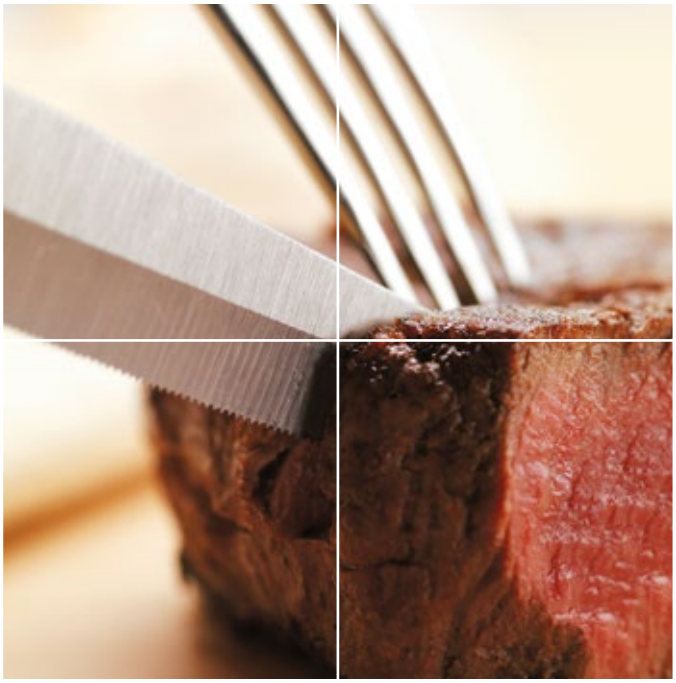
Communication and Next Steps

While improvements have been made around brands, horns, and bruising. There is still work to be done on liver abscesses and tag. In addition, there appears to be a trade-off between quality and yield grades with industry prioritizing quality grading demanded by consumers over the inefficiencies showing up in yield grading.

Currently the largest economic costs to industry are off-weight ($47.7 million) and yield ($33 million) discounts as shown in the cooler audit; and liver ($61 million) and tag ($30 million) discounts in the processing floor audit.

**Yield grade discounts were not measured in the 1994/95 audit and therefore totals are not comparable with later audits.*





A Beef Research Cluster Initiative

The NBQA study is coordinated by the Canadian Cattlemen's Association and is financially supported by the Canadian Beef Cattle Industry Science Cluster, through funding provided by the Beef Cattle Research Council and Agriculture and Agri-Food Canada. The assistance of the NBQA technicians and support from Canadian slaughter plant personnel is gratefully acknowledged.

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