

National Beef Quality Audit

2010/11 Plant Carcass Audit



An Executive Summary for the Beef Industry



The 2010/11 National Beef Quality Audit

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Introduction



Processing Floor Audit



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The Canadian Cattlemen's Association vision is to have a dynamic, profitable Canadian beef industry with high-quality beef products recognized as the most outstanding by customers at home and around the world. The development and execution of the National Beef Quality Audit supports this commitment.

Introduction

The National Beef Quality Audit (NBQA) was first undertaken in 1995 with the intent to measure quality defects which could be managed primarily through the efforts of cattle producers. In addition to benchmarking quality parameters, the NBQA supports the development of strategies to reduce the incidence of defects. The 2010/11 audit is the third to be completed and has occurred 12 years following the second audit in 1998/99. The ultimate objective of the NBQA is to enhance the quality and safety of Canadian beef while increasing the profitability of the domestic beef and cattle industry.

Processing Floor Audit

Slaughter plants from eastern and western Canada participated in the NBQA processing floor audit. The plants surveyed slaughter more than 75% of cattle processed in Canada and the sample selected for the audit represents approximately 1% of the annual slaughter during the study period. The processing floor audit utilized three technicians as well as a veterinarian to provide oversight and to assist in evaluation of carcasses. Each plant was visited from two to three consecutive days in September-October 2010 (Fall visit), January-February 2011 (Winter visit) and April-May 2011 (Spring visit) to capture seasonal trends in the prevalence data. Three technicians were located on the processing floor to collect data during slaughter. Observations were made immediately after stunning, following removal of the hide and on the offal collection table. Cattle were assessed for brands, horns, tag, bruises, surface injection site lesions, grubs, body condition score, liver abscesses, and condemnations.

Cooler Audit

In the cooler one certified grader and one technician graded at least 10% of the carcasses that passed through the line (total 16,711). Data recorded using the Canadian grading standards (CFIA, 1992) included:

the length and width of the rib-eye and estimated muscle score, fat class, marbling score (Prime, AAA, AA, A and devoid), dark cutters, staggy, conformation, yellow fat, and carcass age. When the line was stopped and operationally feasible, actual rib eye areas (REA, cm²) at the grade site were recorded.

Methods used for individual attributes are outlined throughout this report and were as per those utilized in previous Canadian NBQA studies¹.

Comparisons to Prior Audits

To measure progress since the 1998/99 audit, comparisons of the frequency of defects as well as their cost were made. Industry averages, sourced through Canfax Research Services, were applied to calculate the economic costs associated with the defects. Formulas for calculating costs were those previously employed in the 1998/99 audit to facilitate benchmarking. When comparing costs it is important to note that while efforts were made to compensate for changes in labour rates and industry practices, significant change has occurred. As such, the economic values and comparisons made to the prior audit are estimates.

Project Funding

This NBQA research project was jointly funded through the Beef Cattle Industry Science Cluster under the Growing Canada Agri-Innovations Program and beef producer national check-off funds. The Beef Science Cluster, managed by the Beef Cattle Research Council (BCRC), is a partnership between Canada's beef industry and Agriculture and Agri-Food Canada. Under the partnership, industry research funds are leveraged and allocated to projects that have the greatest potential to benefit the competitiveness of the Canadian beef industry.

¹ Van Donkersgoed J, Jewison G, Bygrove S, Gillis K, Malchow D, McLeod G. Canadian beef quality audit 1998-9. Canadian Veterinary Journal 2001; 42: 121-126.

Van Donkersgoed J, Jewison G, Mann M, et al. Canadian beef quality audit. Canadian Veterinary Journal 1997; 38: 217-225.



Processing Floor Audit

Tag



Tag is the manure and mud on the hide of an animal. Tag damages the hide and may increase the risk of contamination of the carcass during removal of the hide. Any visual demerits, such as manure,

dirt or rumen content, on the carcass during skinning must be trimmed. Taggy cattle also result in additional labor costs in the processing plant, production line slowdowns, and damage to equipment in the leather making process.

A tag score that ranged from 0 for a clean dry hide to 10 for a very dirty wet hide was used in the NBQA. It included a subjective score of 0 to 3 for the area and extent of tag on each of the legs, belly, and sides, and a score of 1 if the hide was wet rather than dry.

Audit results indicated the percentage with tag was high (85.3%) in fed cattle (steers and heifers) throughout the year. Weather conditions were very wet in 2010 and feedlot pens were in poor condition and difficult for producers to clean because of the weather. The percentage with tag in non-fed cattle (cows and bulls) was 20.6%, considerably lower than fed cattle (85.3%) and most likely due to the differences in housing, with cows and bulls typically housed on range and feedlot cattle housed in confined pens. There was a higher incidence of tag in the Spring in non-fed cattle which may reflect weather conditions and differences in housing of some non-fed cattle in pens or smaller pastures during calving season.

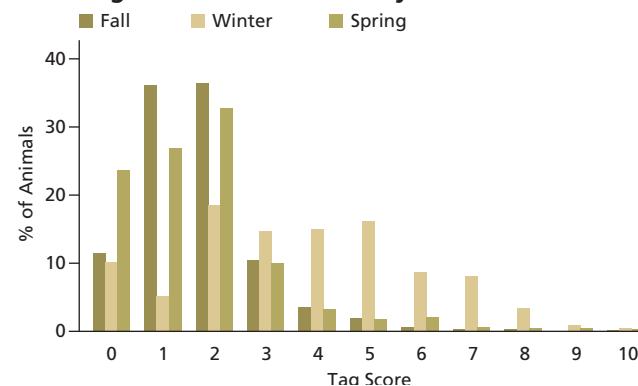
In comparison to the 1999 study, the 2010/11 audit occurrence of tag in fed cattle was more than double the 1999 level. This variance is due possibly to the weather condition differences between the two periods. Tag cost the beef industry \$8.17/head* on average or \$26.1 million in 2011 versus \$30.6 million in 1999. These costs are a result of hide damage, trim losses and increased labour costs at the packing plant.

Tag may be reduced by designing pens and working areas to enhance drainage, through the use of bedding materials and by scraping of pens as required.

Tag prevalence by season

% with tag	Fed	Non-fed
Fall	88.5%	10.1%
Winter	89.7%	17.9%
Spring	76.5%	33.6%
Total with tag	85.3%	20.6%

Tag Score of Fed Cattle by Season



* Total industry loss divided by total cattle slaughtered

Horns



Horns cause economic losses from bruising, head condemnations, and extra labor in the packing plant. Producers have been encouraged to use polled bulls in breeding programs or to dehorn cattle early

in age using effective and humane procedures.

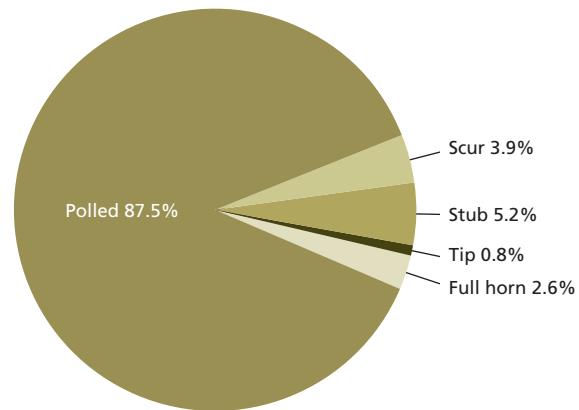
The frequency and type of horns were recorded during the audit. Horns that were < 2 inches long were called *scur*; those 2 to 3 inches long were called *stubs*; those > 4 inches long with a tipped point were called *tipped*; and those > 4 inches long with a sharp point were called a *full horn*.

The majority of fed and non-fed cattle in the 2010/11 audit were polled, with these animals accounting for 87.5% and 89.4% of the fed and non-fed cattle, respectively. Less than 3% of the cattle had full horns. The percentage of polled cattle is approximately 20% higher in fed and non-fed cattle in the 2010/11 compared to the 1999 audit. Processors lost \$192,535 in 2011 (\$0.06/head*) versus \$106,003 (\$0.032/head) in 1999 due to extra labour costs for knocking off the horns. Although the industry loss in 2011 exceeded that in 1999, the increase was a result of increase in labor costs and not horn prevalence, as the defect improved from 1999 to 2011.

Horn type and prevalence by season

Horn Type	Fed	Non-fed
Polled	87.5%	89.4%
<2" – scur	3.9%	4.2%
2-4" – stub	5.2%	4.0%
4" – tip	0.8%	0.6%
Full horn	2.6%	1.8%

Horn Prevalence – Fed Cattle



* Total industry loss divided by total cattle slaughtered



Processing Floor Audit *(continued)*

Body Condition Score



Body condition score (BCS) is a subjective measure to assess the amount of body fat an animal is carrying. Body condition score was recorded from 1 (very thin) to 5 (grossly fat). Body condition

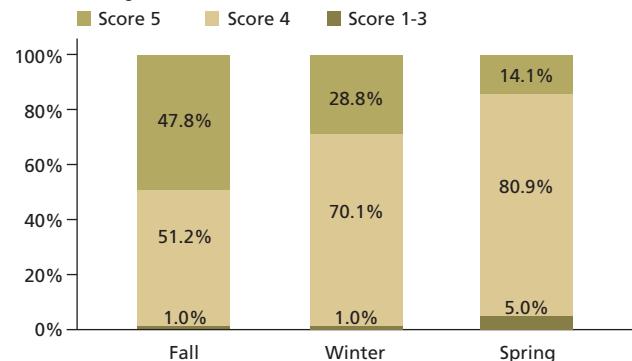
scoring can be used to determine and adjust feeding programs, sort and manage cattle for feeding and slaughter, and predict herd fertility.

Fed and non-fed cattle had higher BCS than in previous audits, which marks an improvement. None of the fed cattle were thin in the 2010/11 audit, and the % fed cattle which were scored as fat (5) ranged from 14% in Spring to 48% in the Fall. The average score for fed cattle ranged from 4.09 in the Spring to 4.47 in the Fall. Of the non-fed cattle, 4% or less were fat and the percentage of very thin (1) cattle ranged from 6%

in the Spring to 19% in the Fall. The average score for non-fed cattle was 2.4 in the Fall, 2.8 in the Winter and 3.0 in the Spring.

Market conditions related to fed and feeder prices as well as feed costs will determine how timely fed cattle are marketed. Typically the condition of non-fed cattle is poorer than that of fed cattle since non-fed cattle are culled from the beef herd. Producers should work with their nutritionist to determine optimal condition scores at various times of the year for their cow herd.

Body Condition Score - Fed Cattle



Body condition score distribution by season

% of Fed				% of Non-fed		
Score	Fall	Winter	Spring	Fall	Winter	Spring
1	0.0%	0.0%	0.0%	19.4%	13.9%	6.2%
2	0.0%	0.0%	0.0%	39.9%	22.1%	23.2%
3	1.0%	1.0%	5.0%	30.5%	34.1%	41.9%
4	51.2%	70.1%	80.9%	6.2%	28.4%	24.3%
5	47.8%	28.8%	14.1%	4.0%	1.5%	4.3%

* Total industry loss divided by total cattle slaughtered

Livers

The Elanco scoring system was used to assess livers. 0 = no abscesses; A- = 1 or 2 abscesses or abscess scars; A = 2 to 4 well organized abscesses generally < 1 inch in diameter; and A+ = 1 or more large active abscesses with inflammation of the liver tissue. A+ livers are associated with reduced feedlot performance.

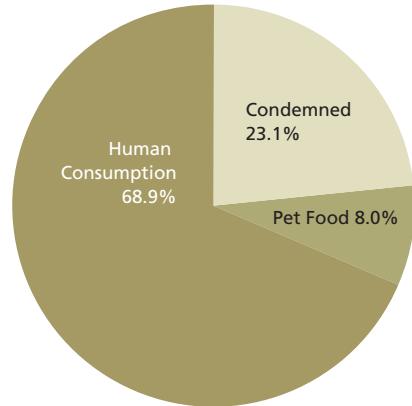
Liver abscesses in feedlot cattle can be reduced by good feed management practices, such as, bunk management and effective ration changes, and antimicrobial prophylaxis.

The occurrence of A+ livers was much higher in the 2010/11 audit for fed and non-fed cattle than in the 1999 audit. In the 2010/11 audit, 9.9% of livers from fed cattle scored A+ compared to 2% in 1999. In feedlot cattle this may be due to changes in feeding practices since 1998/99, such as the feeding of wheat, which may increase the risk of grain overload which leads to liver abscesses.

The percentage of livers from fed cattle that were suitable for human consumption in the 2010/11 audit (69%) was lower than the 1999 audit (76%). Also, there were more condemned livers relative to livers suitable for pet food in the 2010/11 audit.

This may be due to the higher percentage of abscessed livers in 2010/11. The economic loss from liver discounts in 2011 is estimated at \$9.36/head* for all cattle, for a total industry loss of \$29.9 million. This compares to an industry loss of \$8.8 million in 1999.

Fed Cattle Liver Categories



Liver score distribution by season

% of Fed				% of Non-fed		
Score	Fall	Winter	Spring	Fall	Winter	Spring
A-	17.4%	2.2%	3.4%	17.8%	1.8%	2.2%
A	5.7%	1.6%	4.8%	1.0%	0.7%	1.4%
A+	5.1%	16.1%	10.4%	1.2%	6.6%	0.8%
Scars	10.9%	9.3%	3.9%	18.9%	36.1%	0.8%
0	60.9%	70.2%	77.1%	61.0%	54.5%	94.6%

* Total industry loss divided by total cattle slaughtered



Processing Floor Audit (continued)

Surface Injection Site Lesions

Injection site lesions result in trim and tough beef. The occurrence of surface injection site lesions in fed cattle in the 2010/11 audit was lower than in non-fed cattle - .56% versus 7.34%. This may reflect the conditions under which cattle are sold. The majority of fed cattle sold are healthy, finished cattle from feedlots which have not been recently treated with any vaccine or drug. On the other hand, non-fed cattle are typically cull cattle that are being railed for disease or poor performance.

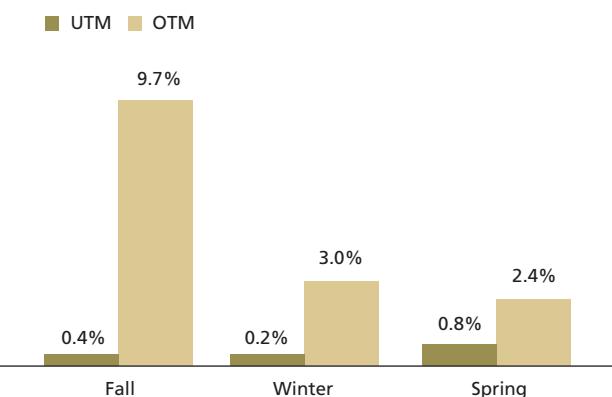
Surface injection site lesions on the carcass were measured; however, most injection site lesions are found deep in the muscle. Purveyor audits of primal and subprimals, where the interior of cuts can be examined, are required to more accurately assess the incidence of injection site lesions.

To reduce injection site lesions there are best practices which can be followed. These include:

- Veterinarians and producers are encouraged to give all injections in the neck rather than the hip
- Give drugs subcutaneously where label directions permit
- Avoid extra-label use of drugs that may cause adverse tissue reactions and drug residues
- Change needles every 10 to 15 uses or when dull, burred, or bent

- Keep equipment and injection site lesions clean
- Give no more than 10 ml of product in any 1 site
- Keep multiple injections 2 to 3 inches apart
- Inject straight and deep in the muscle for intramuscular (IM) injections
- To use the tented method for subcutaneous injections (other than for Micotil because of human safety issues)
- Use proper size needles based on the route and size of the animal

Percentage of Carcasses with a Minor Lesion



Surface injection site lesions by season

Fed				Non-fed		
Score	Fall	Winter	Spring	Fall	Winter	Spring
Minor	0.40%	0.20%	0.80%	9.70%	3.10%	2.40%
Major	0.01%	0.00%	0.02%	4.20%	0.20%	1.10%
Critical	0.00%	0.00%	0.00%	0.60%	0.00%	0.10%

Brands

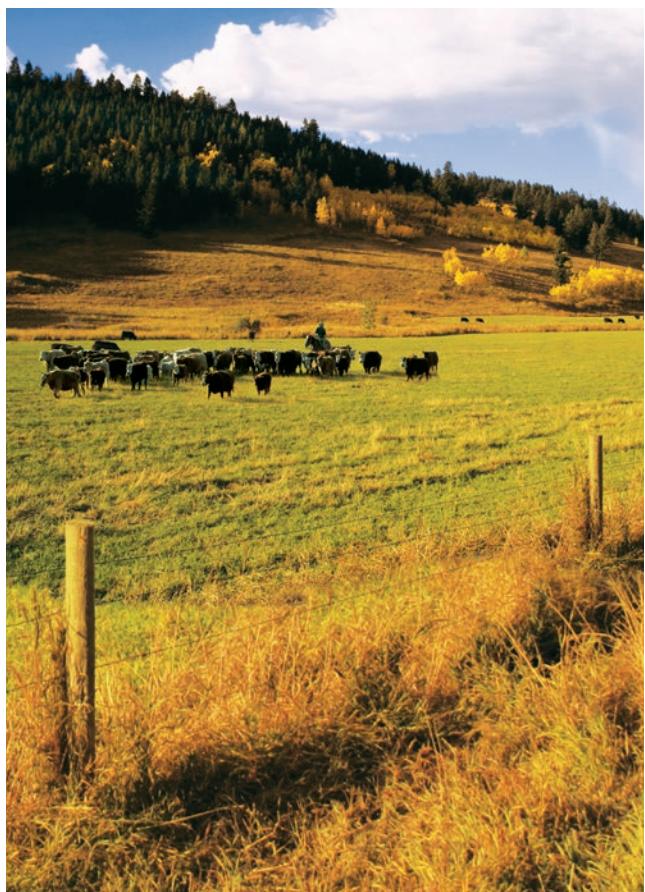
Brands are used by some producers as a permanent form of animal identification, as they may be helpful in identifying stolen or lost cattle and determining animal ownership. Brands permanently damage the hide and reduce hide value. Branding can also cause temporary pain to animals. This management practice is considered an animal welfare issue by some people.

Brands are still used in some range cattle for identification. This permanent form of identification provides some value when cattle from multiple owners share common pastures, such as community pastures. All cattle in Canada are identified with a Canadian Cattle Identification Agency (CCIA) ear tag. As well, it is common practice in feedlots to identify cattle with a management tag. These forms of cattle identification are now used in feedlots to individually manage cattle. Cattle are only branded in feedlots if it is required for financing reasons.

In the 2010/11 audit, 5.4% of the fed cattle had hip brands, 3.4% had a rib brand and less than 1% had a shoulder brand. This represents a significant decrease in branding since 1999 when more than 25% of the fed cattle had rib, hip or shoulder brands. In the 2010/11 audit, 59.78% of all brands observed were located on the hip, 37.36% on the rib and 2.86% on the shoulder for fed cattle. Multiple brands were observed on less than 0.1% of fed cattle in the 2010/11 audit, down from more than 8% in 1999.

The economic loss to the industry as a result of hide damage due to branding for all cattle was \$0.88/head* or total \$2.8 million. This compares to \$15.8 million in 1999.

If cattle must be branded for permanent identification, it is recommended to use a single iron brand and a small brand to reduce animal pain, and to use a shoulder or hip brand rather than a rib brand, to reduce hide losses. Staff should be properly trained on how to use a brand, either the hot or freeze iron brand. The trend world-wide is to eliminate or modify practices that cause pain to animals. This trend is also seen in Canada as the number of branded cattle continues to decline.



Brands by location

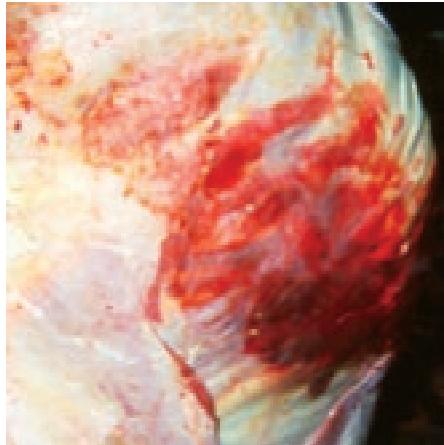
% with Brand	Fed	Non-fed
Hip	5.41%	8.61%
Rib	3.38%	13.70%
Shoulder	0.26%	2.44%

* Total industry loss divided by total cattle slaughtered



Processing Floor Audit *(continued)*

Bruising



Bruising is caused by rough cattle handling, poorly designed facilities (sharp corners, protrusions, slippery floors, slamming gates, narrow entry ways, steep loading/

unloading docks), horns, poor fat coverage on non-fed cattle, riding of cattle, wild temperament of cattle, extra handling, under or overcrowding on livestock trucks, too low compartments in trucks, poor driving (slamming on brakes, rapid turns, rapid acceleration), narrow and low truck gates, as well as slippery truck floors.

During the audit, the number, location, and severity of bruises were recorded on whole hanging carcasses before trimming. Bruises were scored for their number per carcass, location (brisket, chuck, rib, loin, round), and severity (minor, major or critical). Bruises result in significant trim and devalue primal cuts. Minor bruising results in approximately 0.66 lb of trim; major approximately 1.5 lb of trim, and critical over 3.2 lb of trim. Severe bruising, such as that seen in nonambulatory animals, can result in condemnation of the entire carcass.

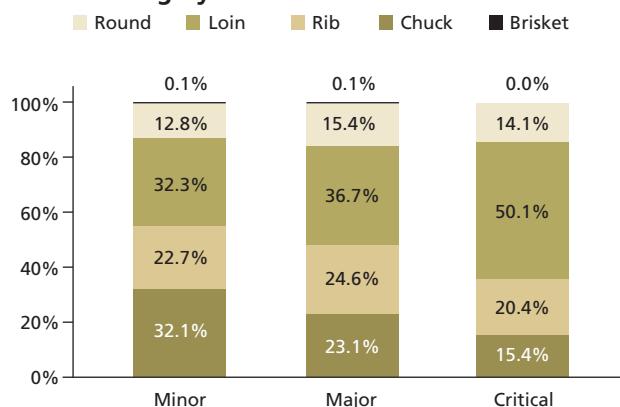
In the 2010/11 audit, 85.7% of non-fed and 34% of fed cattle had bruises, compared to 76.4% and 50%, respectively in the 1999 audit. Of the bruises observed in fed cattle in the 2010/11 audit, 72.3% were minor, 23.9% were major and 3.8% were critical, similar to the 1999 audit results. The economic loss to the industry in 2011 due to bruises on the carcasses was estimated at \$2.10/head* or \$6.7 million.

* Total industry loss divided by total cattle slaughtered

Bruising can be reduced by low stress cattle handling, properly designed facilities, and good transportation. Factors to reduce bruising include:

- Properly trained employees who use low stress cattle handling practices
- Drivers with good driving practices e.g. Certified Livestock Transport course
- Minimal use of prods and sticks
- Reduced noise when handling cattle
- Reduced need for handling
- Well designed facilities, including loading and unloading facilities
- Culling of wild temperament cattle
- Dehorned cattle or use of polled cattle
- Reduced mixing of strange cattle
- Transport physically fit cattle
- Use of special provisions to transport compromised cattle
- Load cattle to optimal density
- Keeping males and females separate
- Using trucks with wide gates
- Keeping trucks in good repair

Bruising by Primal - Fed Cattle





Condemnations of Heads, Tongues and Whole Carcasses

In 2010/11, the Canadian Beef Grading Agency (CBGA) reported that 0.25% of all carcasses slaughtered were condemned. This compares to the 1998/99 audit reporting of 0.3% carcass condemnation. The 2011 economic loss due to carcass condemnation is estimated at \$3.44/head* or \$11.0 million.

* Total industry loss divided by total cattle slaughtered

Although data was very limited, the 2010/11 audit showed that 3.8% of all heads and tongues were condemned, resulting in an economic loss of \$521,680 and \$1,032,569*, respectively. This compares to a head and tongue condemnation rate of 5% in 1999.



Cooler Audit

Hot Carcass Weights

Industry target weights for fed cattle in 2010/11 were 600-925 pounds. The 2010/11 industry average weights reported by the Canadian Beef Grading Agency (CBGA) for steers and heifers were 846 and 778 pounds, respectively. In the 2010/11 audit 86.6% of the fed cattle fell within the target weight category; this compares to 57.4% reported in the 1999 audit. In the 2010/11 audit, fed cattle off-weight carcasses resulted in a loss of \$63.3 million or \$24.57/head*. The wider target weight range in the current audit contributed to reduced costs when compared with \$41/head or \$111 million total loss reported in the 1999 audit.

Rib-eye Area and Fat Depth

In the 2010/11 audit, the average rib-eye area (REA) for youthful cattle was $91.5 \pm 12.70 \text{ cm}^2$. These findings indicate there was a trend overall to increase with respect to the previous audits performed in 1995 (REA = $84 \pm 12 \text{ cm}^2$) and 1998/99 (REA = $90 \pm 13 \text{ cm}^2$). The average grade fat for the A grades were 11.8 mm in Fall, 9.0 mm in Winter and 7.5 mm in Spring, and 9.4 mm overall.

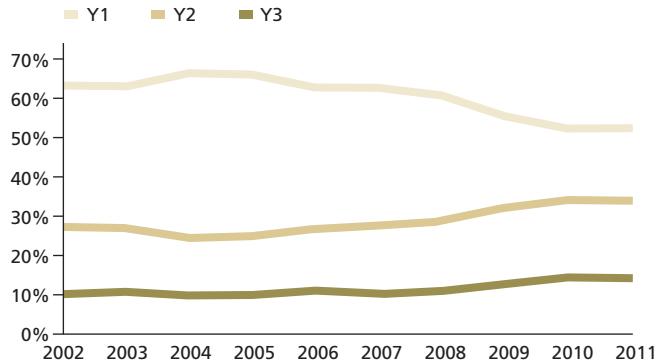
Carcass Yield Grade

For 2010/11, CBGA reported that 52.4% percent of the fed cattle with A grades had a yield grade of Canada 1 (Y1), 33.5% had a yield grade of Canada 2 (Y2), and 14.2% had a yield grade of Canada 3 (Y3). This compares with 1998 CBGA averages of 66.8%, 26.1% and 7.1%, respectively. There was a significant effect of season on the frequencies of the lean meat yield grades within the A grade population. Spring was the season with the highest percentage of carcasses harvested as Y1, followed by Winter and Fall. This seasonal effect on the yield grade may be a consequence of the predominant backgrounding system in each season, namely calf-fed or yearling-fed, used to raise the cattle.

In recent years there has also been a trend in the yield class distribution. The graph below shows the percentage of carcasses in each yield class from 2002 to 2010 based on national data from the CBGA. A slight decline of the percentage of carcasses in the Y1 class and an increase in animals classified as Y2 and Y3 has occurred. A factor contributing to this change has been an increase in carcass weights over time. The average steer carcass weight increased from 765 pounds in 1999 to 855 pounds in 2011.

* Total industry loss divided by total cattle slaughtered

Yield Class Percentage of Canadian Cattle



Canada Quality Grades

For cattle with A grades in 2010/11, CBGA reported 1.2% Prime, 52.5% AAA, 43.4% AA, and 2.8% A. This compares to the 1998 CBGA averages of 0.4% Prime, 34.1% AAA, 55.2% AA and 10.3% A, marking a substantial improvement since the last audit in terms of the percentage of carcasses with higher levels of marbling.

There was a significant effect of season on the quality grade distribution. In the Fall and Spring the percentage of Canada AA increased whereas in the Winter the proportion of Canada AAA exceeded AA. As for yield grade, the seasonal effect on the quality grade may be a consequence of the predominant backgrounding system used in each season.

The percentage of animals assigned the Canada AAA grade has increased in the years following 2007 to present. As noted previously a decrease in the number of carcasses classified as yield class 1 has also been observed in recent years.

CBGA reported .07% of youthful animals as B1 (devoid of marbling) in 2010/11. This is lower than 1998 where approximately .6% of fed cattle were B1. The decrease

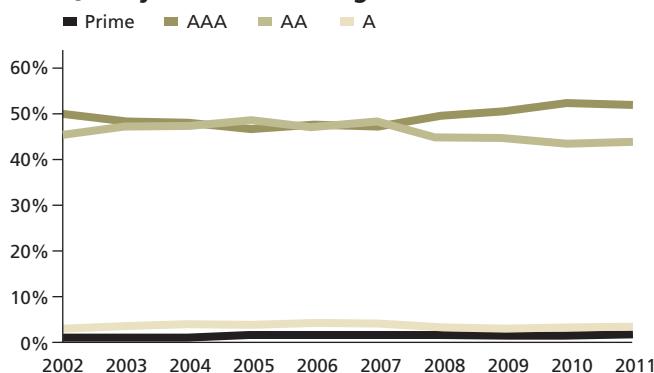
in B1 carcasses was influenced by a more tolerant minimum fat standard being introduced.

For the B2 grade .01% of carcasses in 2010/11 were classified as B2 by CBGA which was lower than the value of .1% in 1998/99. B2 animals are designated because of the presence of yellow fat. Yellow fat is generally seen as less attractive by consumers in global markets and typically results from finishing animals on grass.

There was an overall increase in the number of dark cutters (B4) in 2010/11 compared to 1998/99 – 1.28% versus .84% of youthful cattle. Continued monitoring of dark cutters in future years will be undertaken to assess trends.

For mature cattle, CBGA reported that approximately 4.5% of graded cows were overfat and consequently received the D4 grade during the audit period. This was lower than the estimated 6.3% reported for 1998/99.

Quality Grade Percentage of Canadian Cattle





Economic Analysis

The cooler floor audit indicated an average loss for fed and non-fed cattle of \$37.09/head or total industry loss of \$118.3 million for quality defects in the 2010/11 audit. These figures were about two-thirds that seen in the 1998/99 values of \$55.14/head and \$182.7 million respectively. Broader carcass weight range targets as well as improvement in grading performance contributed to this improved result.

The processing floor audit indicated an average loss for fed and non-fed cattle of \$24.71/head for all cattle and \$78.8 million total cost for quality defects in the 2010/11 audit. These figures were slightly lower than the 1998/99 values of \$27.48/head and \$91.0 million respectively. Progress was made in some areas although a significant increase in the cost of quality defects related to livers was observed.

On an overall basis the estimated cost of quality defects in the 2010/11 audit was \$61.80/head and \$197.2 million total. While the length of time since the previous audit has made comparisons somewhat difficult, it is likely that the cost of defects has been decreased since the 1998/99 estimate of \$82.62/head and \$273.7 million.

The table outlines the results of the economic analysis of the NBQA in a \$/per head amount as well as a percentage change relative to the previous audit. Benchmarking of NBQA economic parameters is complicated by the length of time as the prior audit was performed in 1998/99. Changes in market values, wage rates as well as industry practices have occurred in the intervening decade. Despite these limitations the economic analysis is useful in that it provides an estimate of the relative cost of various types of quality defects. These values can be used to help guide future quality enhancement initiatives as well as related research.

Quality Defect Costs per Head and % Change Since 1998/99 Audit

PROCESSING FLOOR AUDIT*	\$/Head	% Change
Horns-Direct Cost	0.06	+ 89
Bruising	2.10	+ 62
Liver Discounts	9.36	+ 252
Heads Condemned	0.16	- 43
Tongue Discount	0.32	- 75
Tag	8.17	- 12
Brands	0.88	- 81
Grubs	0.00	N/A
Carcasses Condemned	3.44	+ 39
Injection Site Lesions**	0.21	- 96
Total Loss	24.71	- 10
COOLER AUDIT*		
Grade Discounts Fed Cattle	19.46	- 16
Grade Discounts Non Fed	8.54	- 40
Weight Discounts Fed Cattle	24.57	- 40
Total Loss	37.09	- 33
SUMMARY OF LOSSES*		
Slaughter Floor	24.71	- 10
Cooler Audit	37.09	- 33
Grand Total Loss	61.80	- 25

* Total industry loss divided by total cattle slaughtered

** The 1999 audit included a purveyor audit where injection site lesions were determined in cuts. This separate study was not conducted in 2010/11. The purveyor study in 1998/99 indicated a cost of injection site lesion amounting to \$5.45/hd. The cost of internal injection site lesions is not accounted for in the 2010/11 audit and therefore caution is advised when comparing the costs between the two studies.

Conclusions and Next Steps

Processing Floor Audit

The 2010/11 NBQA identified a number of areas where progress has been made relative to the 1998/99 study. The number of cattle with brands has been reduced by more than half since the last audit. While branding has proven to be a very useful means of identifying ownership there has been significant progress made in individual animal identification since the last audit. This includes the move to mandatory utilization of CCIA RFID tags. Given the animal welfare concerns around branding in global markets, the decrease in dependency on this method of identification is a positive factor for the industry.

Also of note was the progress made on reducing bruising in fed cattle. In the current audit 34% of the fed cattle carcasses were bruised compared to approximately 50% in 1998/99. Reductions in bruising are made possible by better handling of animals at both the production and processing sector levels. Improvement was also observed relative to the incidence of horns with more than 85% of fed and non-fed cattle being polled in the current audit.

The most significant issue identified by the processing floor audit was the increases in the incidence of abscesses in livers. In the 2010/11 audit, 9.9% of livers from fed cattle scored A+ on the Elanco scoring system compared to 2% in 1999 – a five fold increase. This area requires further monitoring to confirm the audit findings and if the increase in abscesses is persistent, increased efforts to reduce their level could be made through nutritional management and/or pharmaceutical interventions.

Cooler Audit

The Canadian beef industry is aiming to achieve the dual objectives of increasing carcass yield and simultaneously enhancing eating quality. While the beef grading system is not yet able to directly consider key attributes influencing eating quality such as tenderness, it does evaluate marbling. Under the existing grading system, the ideal carcass would be one that meets both a high

quality and yield grade (e.g. Prime or AAA, Y1 yield grade); in the 2010/11 audit 19.2% of youthful cattle met this target.

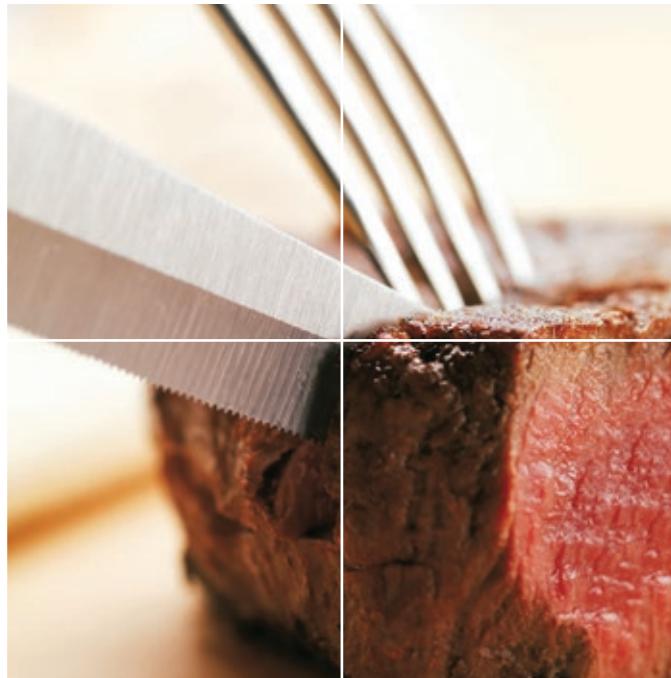
It is well known that marbling is the last fat to be deposited and has a positive effect on the eating quality of some cuts. However, there is an antagonistic relationship between muscle and fat deposition.

Some of the trends observed in the present audit compared with previous audits include the improvement in the carcass quality grade and rib-eye areas. However, the improvements in the marbling scores may have affected lean meat yield. This trend may lead towards over-finished cattle and less efficiency in the production systems.

The audit data suggest there also may be some increase in the incidence of dark cutters (B4 grade). Dark cutting carcasses result in significant losses to the cattle sector and this area is a focus for the industry. Methods to assess the B4 grade using computer vision grading instruments will assist in determining any trend in the most objective manner in future years.

Next Steps

The National Beef Quality Audit continues to provide important feedback to Canadian cattle producers around quality defects which impact the carcass. Increasing the frequency of audits and associated feedback to the supply chain is a priority. Technology transfer efforts to communicate best practices through programs such as Verified Beef Production™ will help support continued progress.



A Beef Research Cluster Initiative

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