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## Comparing Canadian and U.S. Cattle Feeding Pricing Practices and Perceptions of Pricing Issues<sup>1</sup>

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### The Issue

Competition among beef packing firms, use of so-called captive supply, and methods of price discovery have been prolonged, contentious issues in the U.S. beef industry for two decades or more. While of lesser apparent concern in Canada for many years, these same matters rose to the forefront of beef industry issues after the Canada–U.S. border closure that resulted from Canada’s first case of bovine spongiform encephalopathy (BSE) in May 2003.

### Implications and Conclusions

Similarities in pricing practices, trends, and perceptions represent a form of market integration between the cattle feeding industries of Canada and the United States. Clearly, more similarities than differences were found between cattle feedlot managers in the two countries. Key similarities and differences follow.

- Feedlots in both countries have reduced their reliance on cash market, live-weight pricing and increased the extent of grid pricing.
- Formula pricing tied to the cash market is the predominant form of determining the base price in grids in both countries.



- One significant difference in grid pricing between the two countries is the par carcass target, which affects the extent of premiums and discounts received by producers.
- Perceptions by feedlot managers in Canada and the United States on pricing and competition issues were generally similar.

## **Background and Survey Data**

Most research in recent years on how cattle feedlots market and price fed cattle has been conducted in the United States, with little comparable work in Canada. This article narrows the gap between what is known about pricing practices at U.S. feedlots and what little is known about pricing practices in Canada. It also narrows a similar knowledge gap in what is known about viewpoints of cattle feeders with respect to pricing issues. Specifically, similarities and differences are identified between Canadian and U.S. cattle feeders. In general, more similarities than differences were found between cattle feeders in the two countries. Additional detail can be found in Ward, Brocklebank, and Carlberg (2006).

A survey of 1,500 U.S. cattle feedlots in Iowa, Nebraska, Kansas, and Texas was conducted in 2002 (Schroeder et al., 2002), and a second survey of 500 cattle feeders in Nebraska, Colorado, Kansas, and Texas was conducted in 2004 (Ward, 2005). These two surveys provided the basis for a similar survey of 500 Canadian cattle feeders in 2005 (Ward, Brocklebank, and Carlberg, 2006). The 2005 survey instrument contained a combination of questions from the two previous U.S. surveys and questions unique to the Canadian cattle feeding industry. Canadian cattle feeders returned 117 usable questionnaires, a 23.4 percent response rate.

## **Changes in Pricing Practices over Time**

Fed cattle can be priced in multiple ways. With live-weight pricing, each animal in the pen receives the same price regardless of individual animal quality differences. Similarly, with carcass-weight pricing, each animal in the pen receives the same price regardless of differences in carcass attributes beyond weight. In contrast, with grid pricing, each animal receives an independent price consisting of a base, dressed-weight price plus premiums and discounts associated with that animal's carcass characteristics. These quality and yield grade characteristics can significantly affect carcass value. Moving from live-weight to dressed-weight to grid pricing shifts pricing risk from buyers to sellers (Feuz, Fausti, and Wagner, 1993, 1995; Fausti and Feuz, 1995) and increases the variability of prices and revenue (Ward and Lee, 1999; Anderson and Zeuli, 2001; McDonald and Schroeder, 2003). Pricing accuracy increases with grid pricing, and grid pricing has moved the industry closer to value-based pricing. Thus, grid pricing has facilitated increased

**Table 1** Dominant Pricing Methods Used by U.S. and Canadian Cattle Feedlots

<b>U.S.</b>	1996	2001	2006 expected
	(% of marketings)		
<b>Pricing method*</b>			
live-weight cash market	53.5	28.7	18.2
dressed-weight cash market	36.6	25.9	17.7
grid pricing	8.1	43.5	59.7
contracting	1.5	1.8	2.9
<b>Base price determination in grids**</b>			
negotiated		2003	
formula tied to price quote		23.5	
formula tied to packer's plant cost		39.1	
		29.6	
<b>Canada</b>			
	1999	2004	2009 expected
	(% of marketings)		
<b>Pricing method***</b>			
sealed bids (live or dressed weight)	52.6	42.3	32.8
rail (dressed-weight) pricing	30.5	33.2	26.0
grid pricing	3.8	8.0	19.4
contracting	7.8	7.8	13.2
<b>Base price determination in grids</b>			
negotiated		2004	
formula tied to price quote		22.2	
formula tied to packer's plant cost		29.8	
		37.8	

\* 2002 U.S. survey

\*\* 2004 U.S. survey; only feedlots marketing more than 50% of their fed cattle with a grid

\*\*\* 2005 Canadian survey

coordination between stages in the supply chain when used in conjunction with strategic alliances (Brocklebank and Hobbs, 2004; Tronstad and Unterschultz, 2005).

Feedlot managers in the 2002 U.S. survey were asked to identify how cattle marketed from their feedlots were priced in 1996 and 2001, and what they anticipated in 2006. Canadian feedlot managers in the 2005 survey were asked to identify how cattle marketed from their feedlots were priced in 1999 and 2004, and what they anticipated in 2009. Note that the current year, preceding five years, and projected five years do not match for the Canadian and U.S. surveys, due to the years in which the surveys were conducted. A summary of responses is presented in table 1.

Canadian cattle feeders responding to the survey reduced their use of sealed bids (either live weight or dressed weight) between 1999 and 2004 (from 52.6 percent of marketings to 42.3 percent). In the United States, live-weight pricing accounted for 53.5 percent of fed cattle marketings in 1996 but declined to 28.7 percent in 2001, significantly

lower when compared with Canada for 2004. Thus, the decline in cash market pricing has been more pronounced in the United States than in Canada.

The use of rail (dressed-weight) pricing increased slightly in Canada (from 30.5 percent to 33.2 percent) between 1999 and 2004. Dressed-weight pricing declined in the United States between 1996 and 2001, from 36.6 percent to 25.9 percent, and was significantly lower than dressed-weight pricing in Canada.

A significant change in the United States was the sharp increase in grid pricing by respondent feedlots, which was more dramatic than the more modest increase reported by respondents in Canada. Between 1996 and 2001, grid pricing among respondent U.S. feedlots increased from 8.1 percent to 43.5 percent of total fed-cattle marketings. For Canadian respondents, grid pricing increased only from 3.8 percent to 8.0 percent between 1999 and 2004. Thus, the extent of grid pricing in Canada was significantly below that in the United States for the respective current and historical periods. It should be noted that voluntary reports of fed-cattle marketings by CanFax members beginning in 2004 indicate a higher percentage of grid pricing than was reported in the survey, though still below the level reported for the United States.

Recall that grid pricing consists of a base carcass-weight or dressed-weight price in conjunction with a price grid or matrix of premiums and discounts for carcass attributes. Therefore, each animal receives a unique price reflecting its wholesale value. An issue in the United States has been how the base price in grids is discovered. The majority of U.S. base price arrangements are formula prices tied to a reported cash market price or a plant average price where the cattle are expected to be slaughtered (Schroeder et al., 2002). A key issue is whether fewer, lower-quality cattle marketed in the cash market comprise the base price for more, higher-quality cattle marketed on a grid. This is essentially a potential “lemons market” phenomenon (Akerlof, 1970), and evidence of the legitimacy of the concern has been found in the United States (Whitley, 2002). Base prices can be negotiated between the packer and feedlot or can be a formula tied to the cash market (for example, a specific market quote), tied to the cost of cattle purchased by the packer for the slaughter plant where the cattle will be harvested, or tied to another reference market such as the wholesale market (boxed beef cutout value) or futures market.

In Canada, a formula price tied to the plant average cost of cattle was the most common method of determining the base price in grids. Respondents indicated marketing 37.8 percent of cattle marketed with a grid in this manner in 2004. The next most common method was a formula tied to a cash market price quote (29.8 percent), followed by a negotiated base price (22.2 percent). Feedlots responding to the 2004 survey in the United States were divided into those using grid pricing for 50 percent or less of their fed-cattle marketings in 2003 and those using grid pricing for more than half their marketings. For the heaviest users of grid pricing, the base price was determined most frequently by a formula tied to quoted price (39.1 percent of total marketings), followed by formula tied to the plant average cost of cattle (29.6 percent). Therefore, for both Canadian and U.S.

cattle feeders, formula pricing with the cash market as the reference market was the most common method of determining base prices in grids. This presents a potential dilemma for cattle feeders. Packers have an economic incentive to keep the price of fed cattle as low as possible to reduce their input cost of processing. Therefore, by attempting to lower prices paid for cash market cattle, they effectively lower the base price also for grid-priced cattle when the base price is a formula price tied to the cash market.

### **Canadian-U.S. Grid Pricing Differences**

One factor potentially contributing to considerably less grid pricing of fed cattle as reported by cattle feeder respondents in Canada vs. the United States may be a lack of publicly available information on grid premiums and discounts in Canada. In the United States, the Agricultural Marketing Service of the Department of Agriculture publishes a weekly report of premiums and discounts for slaughter steers and heifers as part of its legislated mandatory price reporting program (<http://marketnews.usda.gov/portal/lg>). The report provides useful information for cattle producers wishing to use grid pricing. However, no comparable report exists in Canada. Unterschultz (2004) reported a grid he used to evaluate grid pricing for selected sets of cattle. Apart from premiums and discounts reported there, and premiums and discounts collected in the 2005 survey, which are for a specific point in time, it is difficult to ascertain current premiums and discounts being paid by packers without contacting each packer directly.

A grid pricing calculator was developed for fed cattle marketed in Canada (Ward, 2006) with information from Unterschultz (2004), the 2005 survey of Canadian feeders, and industry contacts in Canada. The Canadian grid calculator resembles the U.S. version (Ward, 2002b) with some distinct differences, in part due to slaughter cattle grade differences in Canada compared with the United States.

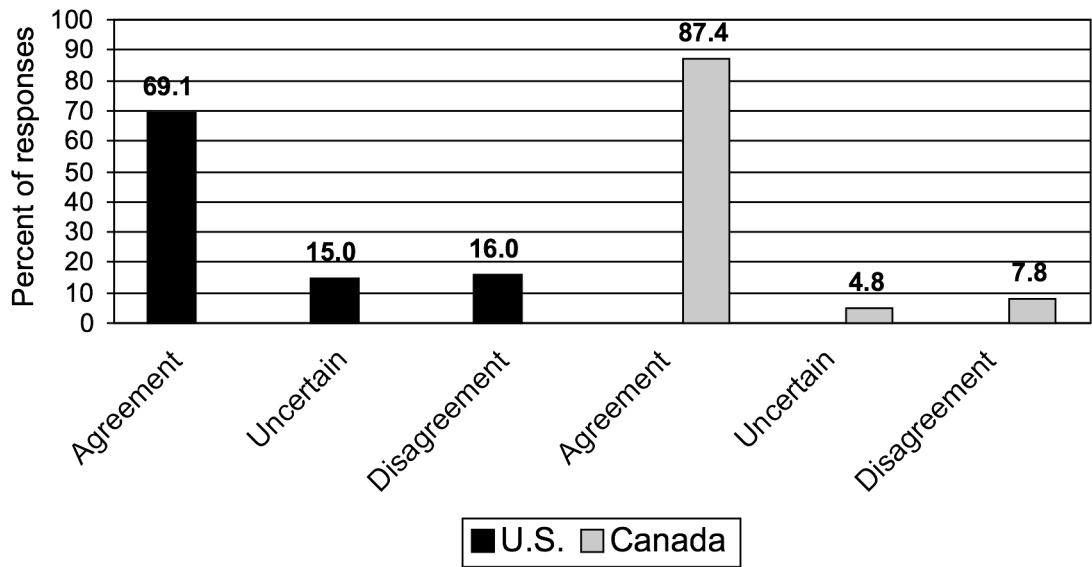
Use of the grid calculators for the United States and Canada revealed a distinct difference. Clearly, premiums and discounts in grids are always relative to the base or par carcass characteristics – in essence, the cell of the quality grade–yield grade matrix that is the base. If the base were one extreme cell of the grid (upper left as most grids are constructed), there would be no premiums and all discounts; similarly, if the other extreme cell were chosen for the base (bottom right), there would be all premiums and no discounts. In the United States, the net grid price (base price plus premiums and minus discounts) is usually lower than the base price. The driving forces are discounts for Select carcasses and for yield grades 4 and 5 carcasses (Feuz, 1999; Johnson and Ward, 2005, 2006). For grids in Canada, the net grid price is usually higher than the base price. A higher percentage of carcasses receive premiums relative to the base, and fewer are discounted. As well, discounts are not as severe in Canada as they are in the United States for quality grades and yield grades just below the base or par carcass characteristics.

Given the grid pricing differences, one might characterize the U.S. beef industry as a discount market or discount-driven market. Cattle feeders strive to reduce discounts in order to raise the net grid price. The Canadian beef industry might be characterized as a premium market or premium-driven market. Cattle feeders strive to receive premiums and are less concerned about discounts. Whether these differences provide different incentives to cattle producers in the two countries is not entirely clear. What matters most is revenue per animal or per sale lot vs. the cost of the cattle, feed, and related expenses. Therefore, it is not known if the nature of grid pricing mechanics in the two countries affects behaviour of cattle producers and feeders in terms of choosing genetics and managing cattle on feed.

### Perceptions about Pricing and Marketing Issues

Feedlot managers were asked to rate on a seven-point scale their degree of agreement or disagreement on several statements related to pricing and marketing issues with regard to fed cattle. Results here focus on those indicating any degree of disagreement (slight to strong) and those indicating any degree of agreement (slight to strong).

Canadian feedlot managers expressed strong concern about moving away from the cash market. Of all respondents, 87.4 percent agreed that reduced trading in the cash market would be harmful to the industry (figure 1). Respondents likely recognized the continued importance of the cash market itself, plus its importance as a reference market

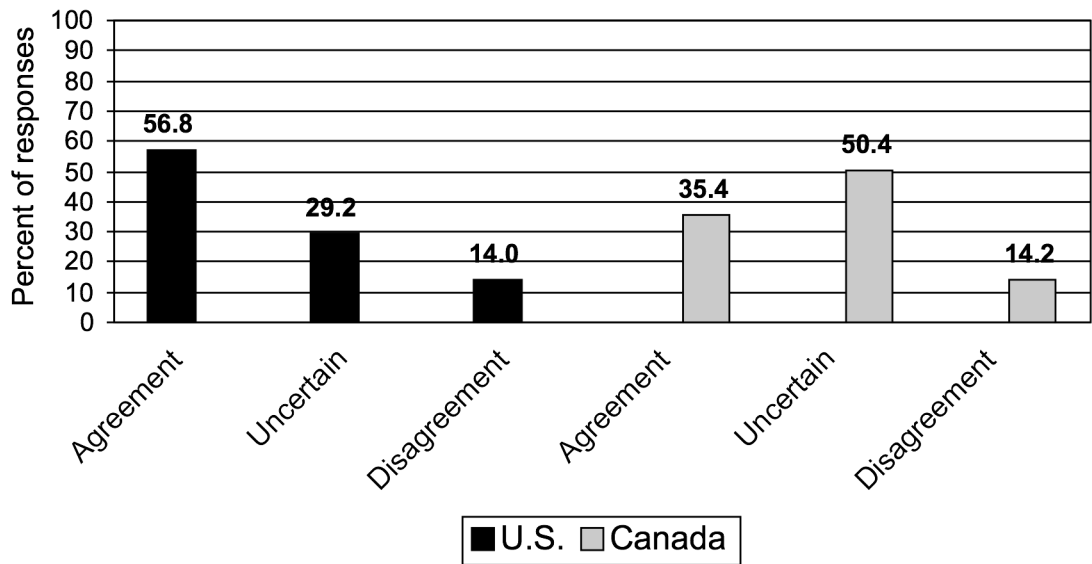


**Figure 1** Percentage response, U.S. (2002) and Canada (2005), to *reduced trading in the cash market would be harmful to the beef industry.*

for formula-determined base prices in grids. Feedlot managers in the United States also expressed concern that reduced trading in the cash market would be harmful to the industry, but significantly less so than their Canadian counterparts. Of respondents to the 2002 survey, 69.1 percent agreed that reduced trading in the cash market would be harmful to the industry. Thus, concern among U.S. respondents was significantly less than among Canadian feeders, though concern was still quite strong. Differences in perception also may be related to the timing of the two surveys.

Some feeders believe one possibility to improve the way in which the base price in grids is discovered is to negotiate the base price rather than use a formula tied to the cash market. A majority of Canadian cattle feeder respondents (50.4 percent) were uncertain about negotiating base prices in grids (figure 2). A smaller percentage (35.4 percent) agreed that negotiated base prices were preferable to formula prices. Compared with Canadian feedlot managers, a higher percentage of U.S. feeders agreed that a negotiated base price was preferred to a base price determined by formula. Of U.S. respondents in 2002, 56.8 percent agreed that the base price should be discovered through negotiation.

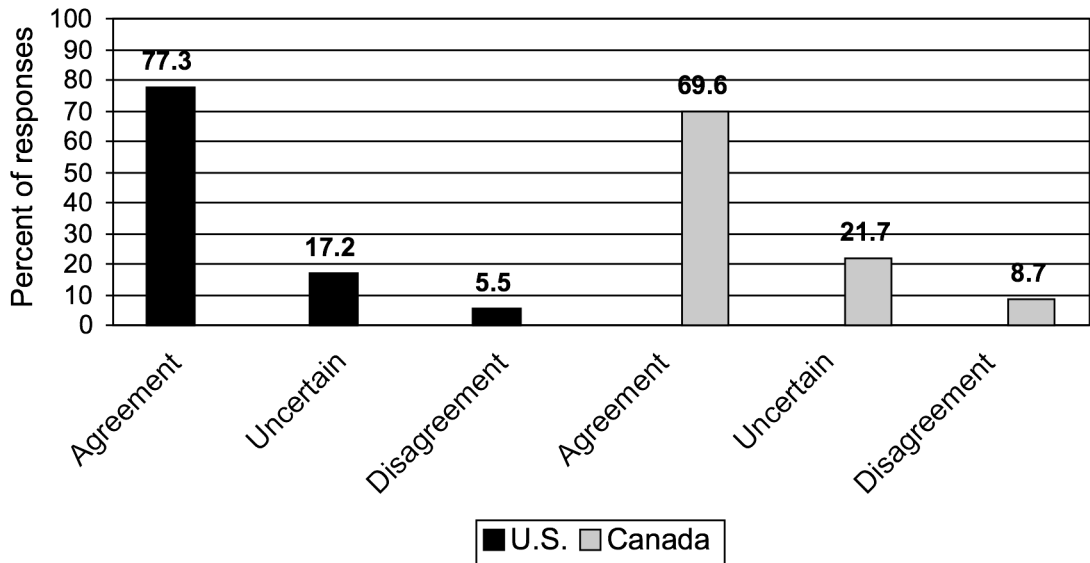
Feeders in Canada and the United States were in more agreement that the preferred reference market for a formula to discover the base prices was the wholesale or retail



**Figure 2** Percentage response, U.S. (2002) and Canada (2005), to *negotiated base prices in grids are preferred to formula prices.*

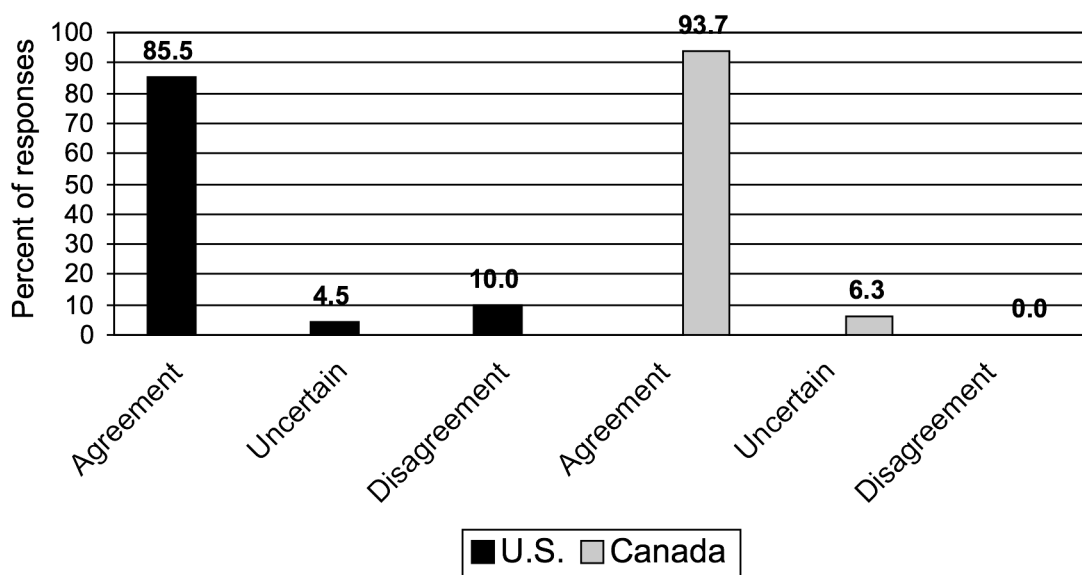
market rather than the cash market (figure 3). For Canadian respondents, 69.6 percent agreed formula prices in grids should be tied to the boxed beef or retail markets. Among U.S. respondents in 2002, 77.3 percent agreed formula base prices should be tied to the wholesale boxed beef or retail markets. This alternative is preferred by many economists to the more common formula tied to the cash market. Packers have an economic incentive to push wholesale prices as high as possible in order to increase their sales revenue. Conversely, packers have an economic incentive to push cash market fed-cattle prices as low as possible, since the procuring of fed cattle represents the primary cost to them in their processing operations.

A potential method of reducing packers' procurement costs for fed cattle is to have precommitted or captive-supply cattle. The use of captive supplies reduces the proportion of cash market trading, contributing to potential for a thin-market problem and a lemons market, as mentioned earlier. A bigger concern, however, is with packers using captive supply to leverage their cash market bids lower. This is especially concerning when the buyer market is characterized by an oligopsonistic structure. Research on captive-supply impacts has been quite consistent, finding in nearly all cases a negative but small effect on cash market prices as the extent of captive supply increases (Ward, 2002a).



**Figure 3** Percentage response, U.S. (2002) and Canada (2005), to formula base prices in grids should be tied to boxed beef or retail markets.





**Figure 4** Percentage response, U.S. (2002) and Canada (2005), to cash market bids by packers are lower when packers have cattle contracted with feeders.

Canadian feedlot respondents overwhelmingly agreed (93.7 percent) that cash market bids are lower when packers have cattle contracted or have a marketing agreement with feeders (figure 4). This perception is based on observation, perhaps combined with an *a priori* opinion, and is consistent with previous research conducted in the United States. However, no studies have been conducted to date on captive-supply impacts in Canada. U.S. feeders concurred with their Canadian counterparts, overwhelmingly agreeing (85.5 percent) that packers bid lower for cash market cattle when they have cattle contracted.

### Summary

A 2005 survey of Canadian feedlots and previous surveys of U.S. feedlots in 2002 and 2004 enabled comparing several pricing practices and pricing perceptions of feedlot managers in the two countries. Findings suggest more similarities exist between the two industries than differences. Given the extent of trade between Canada and the United States in live cattle and beef, the beef industries in Canada and the United States appear interdependent and have many similarities. Similarities in pricing practices, trends, and perceptions represent a form of market integration between the cattle feeding industries of Canada and the United States. More similarities than differences were found between cattle feedlot managers in the two countries, as summarized by the following:

- Feedlots in both countries have reduced their reliance on cash market, live-weight pricing and increased the extent of grid pricing. However, the extent of grid pricing in the United States has out-paced that in Canada.
- Formula pricing tied to the cash market, either a reported price quote or the average cost of cattle procured for the plant where cattle will be slaughtered, is the predominant form of determining the base price in grids in both countries.
- One significant difference was noted in grid pricing between the two countries. In the United States, net grid prices are nearly always lower than the base price in the grid, whereas in Canada, net grid prices are nearly always higher than the base price.
- Feedlot managers in Canada and the United States generally agreed that reduced cash market trading was harmful to the industry; the base price in grids should be tied to the wholesale or retail market rather than the cash market for fed cattle; and packers could leverage captive-supply purchases to pay lower prices for fed cattle.

Research reported here confirmed many similarities and identified few significant differences between Canadian cattle feedlot managers and U.S. feedlot managers. Results clearly show that market policies and economic pressures on the feeding industry of one country will affect the feeding industry of the other. Cattle feedlots and packers in both countries are moving more toward value-based pricing of fed cattle and increased forms of vertical coordination. Whether or not these trends will evolve differently in the two countries, and what the ramifications of the changes will be, are as yet unknown; these questions should be the subject of future research by agricultural economists in both countries.

## References

- Akerlof, George A. 1970. The market for “lemons”: quality uncertainty and the market mechanism. *The Quarterly Journal of Economics* 84(3): 488-500.
- Anderson, John D., and Kimberly A. Zeuli. 2001. The revenue risk of value-based pricing for fed cattle: a simulation of grid vs. average pricing. *International Food and Agribusiness Management Review* 4: 275-86.
- Brocklebank, Andrea, and Jill E. Hobbs. 2004. Building brands: supply chain alliances in the Canadian beef industry. University of Saskatchewan, Department of Agricultural Economics, report prepared for Canfax Research Services, October 2004.
- Fausti, Scott W., and Dillon M. Feuz. 1995. Production uncertainty and factor price disparity in the slaughter cattle market: theory and evidence. *American Journal of Agricultural Economics* 77(August): 533-40.
- Feuz, Dillon M. 1999. Market signals in value-based pricing premiums and discounts. *Journal of Agricultural and Resource Economics* 24(2): 327-41.

- Feuz, Dillon M., Scott W. Fausti, and John J. Wagner. 1993. Analysis of the efficiency of four marketing methods for slaughter cattle. *Agribusiness* 9(5): 453-63.
- Feuz, Dillon M., Scott W. Fausti, and John J. Wagner. 1995. Risk and market participant behavior in the U.S. slaughter-cattle market. *Journal of Agricultural and Resource Economics* 20(1): 22-31.
- Johnson, Heather C., and Clement E. Ward. 2005. Market signals transmitted by grid pricing. *Journal of Agricultural and Resource Economics* 30(3): 561-79.
- Johnson, Heather C., and Clement E. Ward. 2006. Impact of beef quality on market signals transmitted by grid pricing. *Journal of Agricultural and Applied Economics* 38(1): 77-90.
- McDonald, R. Allen, and Ted C. Schroeder. 2003. Fed cattle profit determinants under grid pricing. *Journal of Agricultural and Applied Economics* 35(1): 97-106.
- Schroeder, Ted C., Clement E. Ward, John Lawrence, and Dillon M. Feuz. 2002. Fed cattle marketing trends and concerns: cattle feeder survey results. Kansas State University, report MF-2561, June 2002.
- Tronstad, Russell, and James Unterschultz. 2005. Looking beyond value-based pricing of beef in North America. *Supply Chain Management: An International Journal* 10(3): 214-22.
- Unterschultz, James. 2004. New instruments for co-ordination and risk sharing within the Canadian beef industry. Department of Rural Economy, University of Alberta, project report 00-04.
- Ward, Clement E. 2002a. A review of causes for and consequences of economic concentration in the U.S. meatpacking industry. *Current Agriculture, Food & Resource Issues* 3: 1-28. [www.CAFRI.org](http://www.CAFRI.org)
- Ward, Clement E. 2002b. Grid pricing calculator. Oklahoma State University, *Extension Facts* 577, July 2002. <http://pods.dasnr.okstate.edu/docushare/dsweb/HomePage>
- Ward, Clement E. 2005. Factors influencing the extent of grid pricing of fed cattle. Selected paper, NCR-134, Commodity Price Analysis and Forecasting Conference, St. Louis, Missouri, April 2005.
- Ward, Clement E. 2006. Canadian grid pricing calculator and examples. National Beef Industry Development Fund [www.canfax.ca/beef\\_supply/](http://www.canfax.ca/beef_supply/)
- Ward, Clement E., Andrea Brocklebank, and Jared G. Carlberg. 2006. Canadian vs. U.S. fed cattle pricing and marketing practices and viewpoints. National Beef Industry Development Fund [www.canfax.ca/beef\\_supply/](http://www.canfax.ca/beef_supply/)
- Ward, Clement E., and Jong-In Lee. 1999. Short-term variability in grid prices for fed cattle. In *Formula and Grid Pricing Fed Cattle: Implications for Price Discovery and Variability*, eds. Clement E. Ward, Dillon M. Feuz, and Ted C. Schroeder. Virginia Tech University, research report 1-99, January 1999.
- Whitley, John E. 2002. The political economy of quality measurement: a case study of the USA slaughter cattle market. *The Australian Journal of Agricultural and Resource Economics* 46(4): 515-38.

## **Endnote**

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