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Overcoming Information Barriers in Cattle Marketing

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Editor’s Note: This article is adapted from a CARD briefing paper, “Quality Management and Information Transmission in Cattle Markets: A Case Study of the Chariton Valley Beef Alliance.” The full text of the briefing paper is available at www.card.iastate.edu.

Beef consumption has declined steadily over the last two decades, both in total quantity and as a share of U.S. meat consumption. Reductions in the price of pork and poultry and health concerns about the effects of red meat consumption account for much of this trend. However, relative improvements in the quality and consistency of pork and poultry products may also be a factor. Perhaps it is no coincidence that the beef industry has trailed pork and poultry in adopting methods for vertical coordination among the various production stages from farm to market. Contract arrangements and vertical linkages—alliances among producers, processors and retailers—are common in pork and poultry production. Beef production, on the other hand, mainly is still coordinated through traditional market structures.

Whether vertical coordination of the kind observed in pork and poultry markets is necessary for further improvement in beef quality is a question that beef industry participants currently are trying to sort out. The beef industry has adopted a variety of novel marketing practices in recent years to improve quality and reduce overall production costs. At one extreme are recent attempts to fully integrate the beef production process, with a single firm coordinating genetic selection, feeding practices, slaughter and fabrication, and marketing. Long-term marketing arrangements between feedlots and packers represent a somewhat less extreme form of integration and have been used in some production areas for many years. Interestingly, the most widely adopted change in recent years—so-called grid pricing—represents an attempt to improve market coordination through more sophisticated quality-based pricing mechanisms. In this case, and in contrast with direct vertical integration, there are essentially no formal vertical linkages; instead, the process attempts to improve vertical coordination through the communication of precise signals about the relative value of various carcass attributes.

Behind all these efforts is at least one common objective: to align incentives so that quality improvement is in everyone’s best interest. It seems that many of the traditional methods for marketing live cattle (both feeder and finished cattle) are not designed with this objective in mind. In particular, in traditional marketing, the flow of production-relevant information across the various stages of beef production is significantly restricted.

Cattle Markets and Information Transmission

The production process for beef cattle is typically characterized in terms of a number of distinct stages starting with genetic selection and breeding, then rearing and weaning, and finally fattening to market weight (finishing) and slaughter. Specialization in cattle markets to some extent mirrors each of these stages: seedstock firms control genetic selection and breed development; ranchers manage cow and calf herds and raise young calves through the weaning stage; feeders raise animals from weaning to market weight; and packers slaughter and process live animals. Although there are many variations on this structure of specialization, for the moment we will focus on this particular arrangement.

We can characterize efficient decision making at each production stage, subject to a given set of growing conditions, breed types, feed costs, other market parameters and other pieces of production-relevant information. For instance, a feeder’s nutrition and health maintenance program for a given animal (or lot of animals) might conceivably depend on nutrition and treatment histories during the rearing and weaning production stages, thus creating the need for information transmission from ranchers to feeders. It may also be important to transmit information in the reverse direction, from feeders to ranchers. For example, ranchers need information on feeders’ management procedures, finishing performance and post-slaughter carcass quality in order to evaluate past decision making.

While sharing this kind of information may seem like an obvious requirement for efficient decision making in beef production, in fact it rarely occurs. Tracking, recording and transmitting information is costly. If the costs are high enough, the transacting parties may choose to either forgo information transmission entirely or may seek some substitute information that is not quite as detailed but is less costly to obtain. In the context of markets for feeder calves, many feedlots employ order buyers to visually inspect calves for traits that are appropriate to the particular operation. However, any such visual inspection, no matter how experienced the buyer, is an imperfect substitute for perfect transmission of all production-relevant information. Specifically, vaccination, nutrition and treatments histories cannot be observed. Feedlots assume a worst-case scenario, often expecting the need to readminister treatments, continued on page 6
and they therefore reduce bid offers. Similar problems arise in the transmission of information from packers to feeders and ranchers.

The Chariton Valley Beef Alliance

The Chariton Valley Beef Alliance (CVBA) is a group of 350 southern Iowa cattle producers who are attempting to overcome these problems. The CVBA has been in place since early 1998. The alliance arose because area packers increasingly used grid-pricing arrangements and the producers wanted to learn to produce, sort and market cattle more effectively under these arrangements. Carcass data collection and source verification are two of the alliance’s primary activities.

Carcass Data Collection

Grid marketing involves the pricing of individual animals (rather than lots of animals) based on the measurement of various carcass-quality attributes. Yet, animal-specific carcass measurements are rarely transmitted back to the feeders and cow-calf producers who deliver under these arrangements. Perhaps the most important activity of the CVBA is to facilitate and coordinate this transmission. Producers interested in obtaining carcass data pay a service fee to the CVBA ($3–$8 per head). The CVBA then coordinates with a third party to physically carry out carcass measurement during slaughter, recording them in electronic form for access by the relevant producer. Packers cooperate in this process by allowing third-party access to the slaughter floor for traits measurement (beyond those reported in USDA yield and quality grades). The CVBA additionally provides support for accessing and interpreting the relevant data. This analysis allows growers to make better marketing, nutrition and genetic decisions.

While it might seem a small matter to distribute animal-specific carcass-quality data to producers (given that prices are based on this data), in fact it is quite complicated and costly. As we noted, doing so adds $3 to $8 dollars per head to the cost of production. Iowa State University Extension estimates a gross margin of roughly $15 per head for Iowa feedlots.

Source Verification

Assessing quality in markets for feeder cattle is a notoriously difficult task. USDA quality grades do exist for feeder cattle, but they are rarely used. Instead, most quality assessment is accomplished through visual inspection by experienced buyers. Of course, many of the important quality characteristics of feeder calves are not fully expressed until the calves have been fattened and readied for slaughter. One means of making this process more objective is to provide third-party verification of genetic and health characteristics of feeder cattle. In addition to providing an objective measure of quality, source verification provides feedlots with accurate information on the status of medical treatments that have occurred before the point of sale and on the genetic composition of animals in a given lot. In addition, the CVBA’s source verification program includes agreements by those receiving information on feeder cattle to return information on carcass quality. Information thus flows in both directions.

An Evolving System

Vertical integration can be defined in many ways, and it is not clear what specific type of arrangement may be necessary to further improve coordination. Whatever the type, however, the feature that seems most important in cattle markets is the establishment of a long-term (and potentially exclusive) relationship among the transacting parties.

While clearly beneficial in some respects, long-term commitments (that is, vertical integration) also entail costs. In particular, the parties to such an agreement limit their use of markets, which offer greater flexibility in procurement and sourcing options, enhanced price discovery, and arguably higher-powered incentives for cost-reducing efforts. Firms inevitably involve elements of bureaucracy that can lead to higher overall production costs. Activities by organizations such as the CVBA therefore can be viewed as attempts to achieve the degree of coordination and information transmission observed in firms without sacrificing the benefits associated with market institutions. Time will tell whether such an outcome can be achieved.