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## Price Discovery and Local Information in Cattle on Feed Reports


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# ECONOMICS COMMENTATOR

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## PRICE DISCOVERY AND LOCAL INFORMATION IN CATTLE ON FEED REPORTS

by

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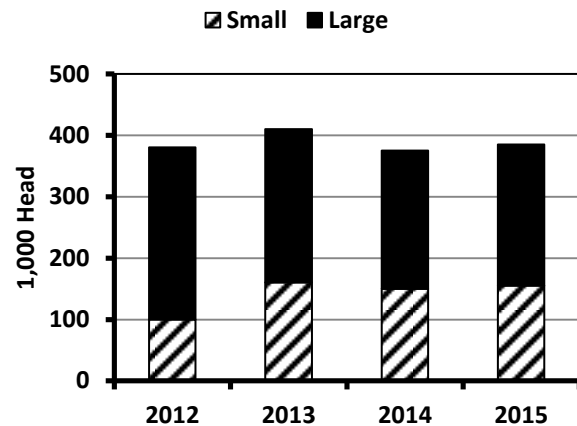
Professor of Economics

Timely and accurate public information on price and volume trends in the fed cattle market is critical to feedlot operators when making the decision to buy feeder cattle and sell fat cattle. A common source of public information is the Cattle on Feed report prepared by USDA-NASS. The report provides the cattle feeding industry with a monthly update on the inventory of cattle currently being fed and of the supply of fed cattle coming to market in the near future. Knowledge of the supply of fed cattle on the market is critical for price discovery in both the cash and futures markets for fed cattle. In this *Commentator*, the local information from Cattle on Feed reports is highlighted and followed by a discussion of the critical role accurate public information plays in the fed cattle market price discovery process.

The Cattle on Feed report is based primarily on information from feedlot operations with a capacity of 1,000 head or more, considered “large” feedlots. Those with a capacity of fewer than 1,000 head are considered “small” feedlots. Both large and small feedlots are surveyed for the Cattle inventory reports. The share of cattle on feed at small lots in South Dakota is higher than the national average. As of

January 1, 2015 large and small feedlots had inventories of 230,000 head and 155,000 head, respectively (Figure 1). Both the share of cattle on feed and the number of cattle in both types of feedlots have stayed fairly constant in recent years.

Figure 1. Cattle on Feed by Feedlot Size in South Dakota.



Source: USDA-NASS

### Cattle on Feed Reports

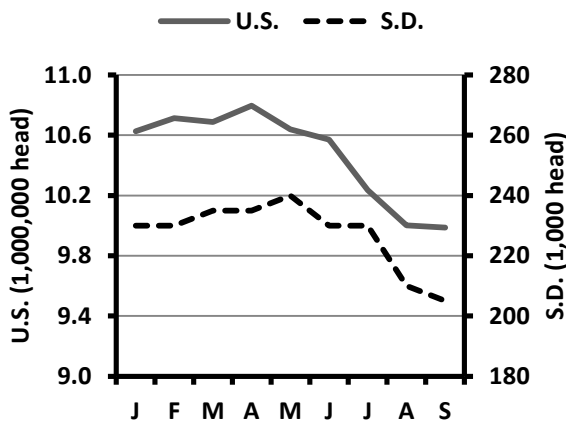
Supply information for price discovery in the fed cattle market comes from monthly Cattle on Feed reports and related statistics. The reports give breakdowns for large feedlots at the national and major-state levels. South Dakota is one of the major states. The reports give on-feed totals as of the beginning of the month, and placement and marketing totals for the prior month. Industry analysts estimate the major components of the reports (on-feed, placement and marketed totals) prior to the monthly release dates.

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The actual report is then compared to the range or average of trade estimates. For example, in mid-September the range of trade estimates for August placements was from 97.7% to 103.2% of the preceding year levels. In the September report, the actual placements were 1.63 million head or 94.6% of 2014 placements. The marketings of 1.59 million head and ending on-feed total of 9.99 million head were both within trade expectations. The “surprisingly low” placements led to price increases on the next trading day.

So far in 2015, the general pattern of on-feed totals has been similar for the U.S. and South Dakota (Figure 2). The South Dakota on-feed total for September 1 was 205,000 head, in line with the typical 2% of the U.S. inventory.

Figure 2. Monthly On-Feed Totals for the U.S. and South Dakota.

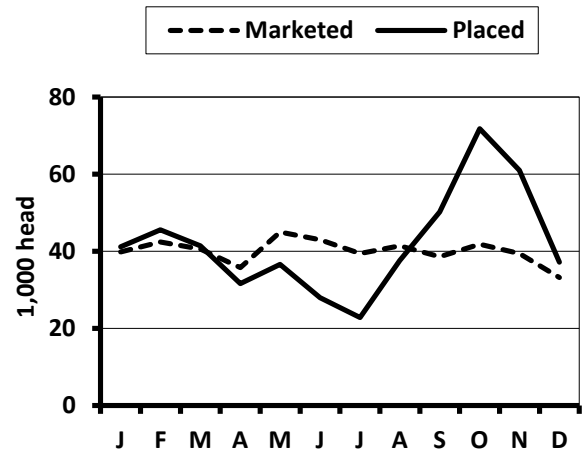


Source: USDA-NASS

Placements in South Dakota totaled 31,000 head during August and marketings totaled 34,000 head. A review of 5-year average data suggests there is a strong seasonal pattern in placements at the state level in South Dakota, while the pattern for marketings is quite smooth (Figure 3). There is also an estimate of the number of on-feed cattle by class (e.g., steers or heifers) that is used to calculate the heifer mix, an indicator of expansion or contraction

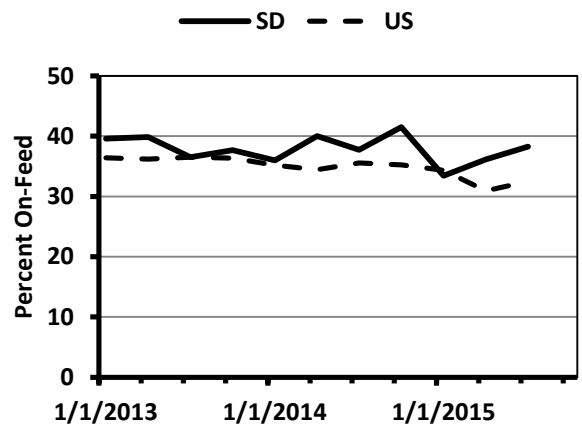
of the cowherd. The heifer mix in South Dakota is often higher, but more variable, than the national heifer mix (Figure 4). The heifer mix on feed gives some indication of the timing of marketings.

Figure 3. Monthly Average Cattle Marketed and Placed in Large South Dakota Feedlots, 2010-2014.



Data Source: USDA-NASS

Figure 4. Quarterly Heifer Mix On-Feed, 2013-2015.



Data Source: USDA-NASS

Placements can be monitored to give an indication of when cattle are expected to be marketed. There is also a monthly breakdown of placements by weights for the four largest feedlot states: Colorado, Kansas, Nebraska and Texas. The placement weights can be used to refine estimates of when cattle will likely be marketed. Lighter-weight placements are more likely to be on feed for a longer time than heavier-weight

placements. The Livestock Marketing Information Center (LMIC), for example, estimates the number of cattle on feed for more than 90 and more than 120 days. While total placements in August were below 2014 levels, they exceeded 2014 levels in the 800+ pounds category. Placements were lower than last year's level for the other weight categories, especially in the 600-699 pounds category, and regardless of geographic breakdown.

Other information is released less frequently. Capacity (at the national level) is given in the February report. January 1 and July 1 totals for cattle on feed in all (not just large) lots are given in the February and July reports, but the latter only provides information at the national total. The number of lots is only reported annually at the national level<sup>1</sup>. In 2014, there were an estimated 72,000 small lots with a combined inventory of 2.4 million head on January 1, 2015, and they marketed a total of 3.0 million head. In contrast, the 1,987 large lots had an inventory of 10.6 million head and marketed a total of 20.5 million head.

**Accurate Price Discovery**

Price discovery is defined as the process of determining the price of an asset in the marketplace through the interactions of buyers and sellers. In the fed cattle market, price discovery occurs in both the cash and futures markets. In the cash market, price discovery occurs through the interaction of buyers and sellers of fed cattle on the marketing day. In the futures market, price discovery occurs through the interaction of buyers and sellers of fed cattle where the marketing date is at some point in the future.

<sup>1</sup> The 2012 Census of Agriculture provides the most recent glimpse of the number of feedlots by size. In 2012, there were 1,263 farms with cattle on feed in South Dakota, with a total inventory of 418,542 head. In the same year, 1,670 farms sold 633,537 head of cattle on feed.

To illustrate the role of information uncertainty, two supply and demand diagrams are provided. In Figure 5 it is assumed that buyers and sellers have perfect information when making decisions in the market for fed cattle. In Figure 6 it is assumed that buyers and sellers have incomplete information on the factors that influence the demand for and supply of fed cattle.

Figure 5. Fed Cattle Market with Complete Information on Market Conditions.

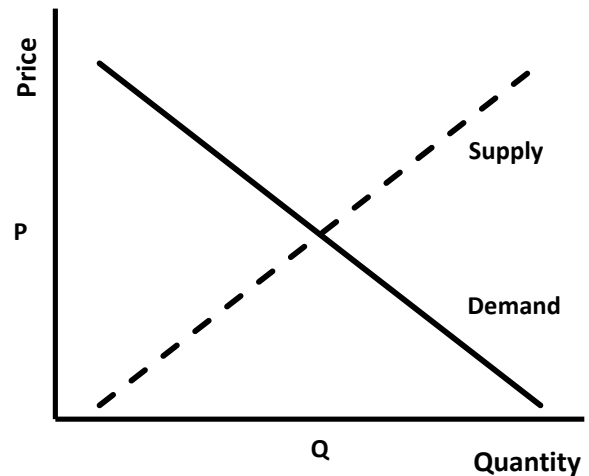
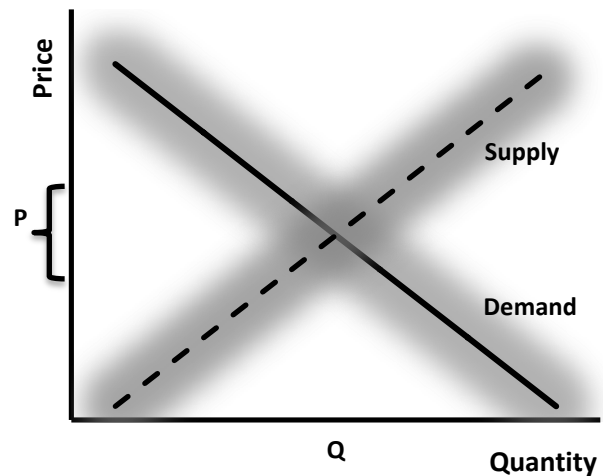


Figure 6. Fed Cattle Market with Incomplete Information on Market Conditions.



In Figure 5, price discovery results in a market price that is a single point (P). In Figure 6, the shaded areas reflect uncertainty about supply and demand conditions. Thus price discovery results in a market price that is not at a single point, but in a range where

transactions may occur (the intersection of the shaded lines). Thus, when there is uncertainty surrounding the true market price for fed cattle, price discovery becomes more difficult and more costly than under certain market conditions. In addition, if information concerning market conditions is relatively unreliable, then the shaded areas in Figure 6 expand, resulting in greater uncertainty being injected into the price discovery process.

If public information is not timely and accurate, then such information may increase uncertainty in the price discovery process. Increased uncertainty leads to additional price volatility in cash and futures markets, which then increases cattle price risk and the cost of using risk management tools. Ultimately, price volatility cuts into feedlot profitability and increases the probability of financial loss.

### Implications

Small feedlot operations (1,000 head or less) rely on the cooperation of their large counter-parts to provide accurate data for public release of current market conditions in the fed cattle market.

Inaccurate public information on market conditions may result in financial risks, particularly for small feedlot operations that may not have access to the same and relatively accurate information that large feedlot operations do. However, increased uncertainty of market conditions increases the financial risk for all operations.

Accurate Cattle on Feed reporting helps reduce the uncertainty surrounding forecasts of fed cattle being marketed, and results in reduced price fluctuations in cattle cash and futures markets. A decrease in price variability decreases the probability of financial loss and decreases the cost of implementing risk management strategies, regardless of the size of the operation. Thus, all feedlots have a vested interest in price discovery.

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