

# Beef Cattle Research Update

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## Bull Price Analysis

The 2008 Cattle-Fax cow-calf survey revealed that the average price for breeding bulls purchased in 2007 was \$2,634. Approximately 25% of respondents reported that they paid an average of more than \$3,000 for bulls purchased in 2007. Producers in the Northwest paid the highest average price at \$2,812, with Southeastern producers reporting the lowest average price at \$2,311. Average prices for the Southwest, Midwest, and Southern Plains regions were \$2,779, \$2,731, and \$2,620, respectively.

Herds of less than 100 cows reported an average purchase price of \$2,253, while herds with cow inventories between 1,000 and 2,500 head paid nearly \$800 more per bull at an average of \$3,045. This difference is likely a reflection of the value of genetics to producers whose overall farm income is more clearly dominated by the beef cattle enterprise (*SOURCE: Cattle-Fax Trends*).

## Relationship Between Residual Feed Intake and Growth Performance, EPD Profiles, and Value Indices of Angus Bulls

Feed accounts for a significant proportion of commercial beef production costs, as much as 60-65% of total costs. Consequently, improving feed efficiency could enhance profit margins. Feed conversion ratio (FCR; lb feed/lb gain) is commonly used in evaluating feed efficiency, but FCR has been shown to be negatively correlated with mature size. Therefore, selection for improved FCR may result in an undesirable increase in cowherd mature size. The objectives of this California State Univ. Chico study were to: 1) determine the relationship between residual feed intake (RFI) and growth performance, and 2) characterize low, moderate, and high RFI cattle for growth performance, growth and ultrasound carcass EPDs, and value indices. RFI is the difference between an animal's actual feed intake and its predicted intake. Therefore, a lower or negative RFI reflects a more efficient animal. In this study, 91 spring-born Angus bulls were consigned to a 112-day central bull test. Individual feed intake and body wt. gains were collected over a 62-day period. RFI was calculated for each bull. RFI values were used to classify bulls into efficient (RFI = -3.0 lb/day), marginal (RFI = 0.1 lb/day), and inefficient (RFI = 2.4 lb/day).

There were no significant differences among RFI groups for birth wt., weaning wt., yearling wt., or milk EPDs. Moreover, there were no significant differences among RFI groups for ultrasound carcass EPDs or value indices. Inefficient bulls exhibited significantly greater ( $P < 0.05$ ) FCR than marginal bulls (7.43 vs. 6.98) and efficient bulls had the lowest ( $P < 0.05$ ) FCR of the three (6.16). Correlation of RFI with avg. daily gain and final wt. were not significant. The correlation of RFI with FCR was statistically significant, supporting the results of the RFI groups' analysis. The authors concluded that phenotypic selection for improved RFI may improve feed efficiency without adversely affecting growth performance (*Cardin et al. 2008. Proc. Western Section ASAS. 59:53*).

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### Percent of U.S. Beef Herd by Herd Size

According to USDA data, nearly half of U.S. beef cows are in herds of less than 100 head. In 2007, 15% of beef cows were in herds of 500 head or more, 39% in herds of 100-499 head, and 46% in herds of 1-99 head. (SOURCE: *Cattle-Fax Trends*).

### Impact of Age and Source Verification of Calves on Value Received Via Video Auctions

The objective of this Montana State Univ. research project was to determine if a premium was being paid for source and age verified feeder calves via video auction. Data on 68,665 Montana calves marketed during June and July of 2007 were provided by Superior Livestock Video. Average sale wt. of all calves was 584 lb, and average sale price was \$1.17/lb with an average lot size of 116 calves. Thirty-one percent of all calves sold were age and source verified, 60% were steers, 15% were weaned from their dam, and 88% were vaccinated prior to shipment (VAC 34 or VAC 35 protocols).

When calculated for a 600 lb calf, the premium received for source and age verification was \$12.83. Other premiums received for this weight of calf were (\$/head): vaccinated, \$14.81; weaned, \$17.64; steers, \$52.43 more than heifers. The authors concluded that when calves were source and age verified, weaned, and/or followed a vaccination protocol, additional dollars were received when marked via a video auction (*Kellom et al. 2008. Proc. Western Section ASAS. 59:137*).

### Factors Affecting Beef Flavor

Dr. Daryl Tatum, Colorado State University animal scientist, recently conducted an extensive review of research on factors that affect beef flavor. Following is his summary of key points for producing consistently flavorful beef.

Production/management factors that influence beef flavor do so primarily via effect on amount and composition of fat. Beef flavor desirability increases as intramuscular fat (marbling) increases. Marbling scores of Modest or greater provide the greatest assurance of desirable beef flavor characteristics.

If the goal is to consistently produce beef with exemplary flavor, then management practices that have been shown to reduce marbling deposition (e.g., ineffective animal health programs, delayed castration of male calves, restriction of dietary energy during the growing period, and aggressive use of growth enhancement technologies) should be avoided. In addition, selecting cattle for increased levels of marbling would, over time, result in favorable effects on beef flavor.

Grain feeding improves beef flavor. In general, grain-finishing periods of approximately 100 days or longer are effective for developing the desirable beef characteristics commonly associated with grain-fed beef. Moreover, corn-based diets seem to produce beef flavor characteristics preferred by most U.S. consumers.

Pre-slaughter stress, resulting in dark cutting beef, has a negative effect on beef flavor. Therefore, adoption of cattle handling practices that minimize pre-slaughter stress is important for assurance of a pleasurable eating experience. ■

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### Impact of Weaning Age, Creep Feeding, and Type of Creep on Steer Performance, Carcass Traits, and Economics

Univ. of Illinois researchers allotted a total of 168 spring-born Angus x Simmental steer calves to four different treatments: 1) Early wean with program-fed high concentrate (EWP); 2) Normal wean with creep (NWC); 3) Normal wean with fiber creep (NWF); and 4) Normal wean with no creep (Control). Steers were weaned at either 63 or 189 days of age. EWP steers were program-fed a high-concentrate diet to gain the same as steers on the two creep-fed treatments from time of early weaning until normal weaning.

NWC steers had significantly greater ( $P<0.05$ ) avg. daily gain and gain/feed than NWF steers. The same was true for treatments 1, 2, and 3 versus the Controls. During the combined finishing period (adaptation + finishing), there were no significant differences in avg. daily gain, dry matter intake, or gain/feed between the EWP and the NWC and NWF. For the overall duration of the study, Control steers required significantly more ( $P<0.05$ ) days to harvest than other treatments. EWP steers had significantly greater ( $P<0.05$ ) marbling scores, percentage of steers grading Avg. Choice or greater, and percentage of steers grading Low Prime or greater than either NWC or NWF steers. Control steers had significantly lower ( $P<0.05$ ) carcass values than the other treatments. Program-feeding early-weaned steers

improved carcass quality traits, but it also increased total costs compared with creep-fed calves. Type of creep did not affect overall performance, carcass quality, or carcass value (*Shike et al. 2007. Prof. Anim. Sci. 23:325*).

### Effects of Bovine Respiratory Disease Treatment on Feedlot Performance and Carcass Traits

The objective of this Iowa State Univ. study was to examine the effects of bovine respiratory disease (BRD) on economically important performance and carcass traits, and to determine the impact of genetics on susceptibility to BRD. The data set consisted of performance and health records on 1,714 Angus-sired calves fed at various feedlots over a 3-year period (2003-2005).

Sire, percent shrink upon entrance to the feedlot, and disposition score were all shown to have significant effects ( $P<0.05$ ) on the number of times an animal was treated for BRD. Sex was not a significant predictor of number of BRD treatments. Number of treatments for BRD significantly affected avg. daily gain, weight per day of age, hot carcass weight, yield grade, marbling score, and ribeye area. The authors concluded that number of treatments for BRD has significant consequences on economically important feedlot performance and carcass traits (*Schneider et al. 2007. Midwest Section ASAS. Abstract 39*). ■