Factors Affecting Beef Cattle Producer Perspectives on Feed Efficiency
Wulfhorst et al., 2010, University of Idaho

To establish the basis for implementation of a producer education program, a social assessment of the willingness and barriers to adoption of a measure of feed efficiency in beef cattle (residual feed intake) was conducted. A 35-question mailed survey was sent to 1,888 producers acquired from the Idaho Cattle Association (n = 488), Red Angus Association of America (n = 2,208) and Red Angus Association of America bull buyers (n = 5,325). The adjusted response rate for the survey was 49.9%.

- Both commercial and seedstock operators indicated that calving ease/birth weight was the most important trait used to evaluate genetic merit of breeding bulls.
- Only 3.8% and 4.8% of commercial and seedstock producers indicated that feed efficiency was the most important characteristic used for bull selection.
- In response, 49.1% of commercial producers and 43.6% of seedstock producers indicated they were willing to adopt residual feed intake as a measure of feed efficiency.

These data indicate that feed efficiency was one of the traits producers consider important; those who perceive feed efficiency as important tended to be actively involved in data collection on their herds, underpinning the notion that objective assessment was valued and used by some.

Evaluation of Temperament on Pregnancy Rate in Beef Embryo Recipient Cows
Jennings et al., 2010, Sam Houston University

The objective of this study was to determine if temperament had an effect on pregnancy rate of recipient females to embryo transfer. Multiparous cows (n = 57) of various breed compositions were used as recipient females. Donor and recipient females were synchronized using a vaginal insert containing progesterone in combination with estradiol 17ß and prostaglandin F₂α. Embryos were...
non-surgically collected 7 d after insemination and transferred to recipients the same day as fresh embryos, or were frozen-thawed embryos preserved in ethylene glycol. At the time of embryo transfer, cows were assigned a temperament score of 1 to 5 (1 = docile and 5 = aggressive) based on the cow’s behavior while being confined in the chute. Following transfer of the embryo, 10 mL of blood were collected to determine serum cortisol concentration to assess each cow’s stress response to handling at the time of embryo transfer. Pregnancy exams were conducted using transrectal ultrasonography at least 21 d post transfer to determine pregnancy rate.

- There was no effect of temperament score on pregnancy rates to embryo transfer and no relationship between pregnancy rates and serum cortisol concentration.
- Recipients that were assigned temperament scores of 4 or 5 had a higher mean serum cortisol concentration than recipients assigned scores of 1 to 3, but this difference was not significant.

Results of this study indicate that temperament of recipient females does not have a significant effect on pregnancy rates to embryo transfer nor is there a correlation between pregnancy rates and stress response of the recipient at the time of embryo transfer.

**Effect of Growing Beef Replacement Heifers on Wheat Pasture Before and During Breeding on Reproductive Performance**

*Bryant et al., 2011, Oklahoma State University*

Reproductive performance of heifers grazing wheat pasture before and during breeding was compared with heifers grazing wheat pasture until approximately three weeks before breeding. In each of two years, 40 Angus and crossbred heifers were placed on wheat pasture in December and assigned to treatment groups in mid-March. Wheat pasture heifers (n = 20) remained on wheat pasture through estrus synchronization and fixed-time AI. Drylot heifers (n = 20) were placed in drylot and fed a corn-based growing ration (11.1% CP) through estrus synchronization and fixed-time AI. Heifers were exposed to bulls 10 d after fixed-time AI for 45 d. Conception after fixed-time AI was determined at 32 d post-AI by ultrasonography.

- Percentage of heifers with luteal activity was 75% and 55% for wheat pasture and drylot, respectively.
- The drylot heifers were heavier than wheat pasture heifers (900 lb vs. 869 lb) at AI but were similar in final weight on native range (919 lb vs. 913 lb).
- Conception rate to fixed-time AI (53% vs. 43%) and final pregnancy rate (95% vs. 88%) were similar for wheat pasture and drylot heifers.

Reproductive performance of heifers grazing wheat pasture during estrus synchronization and fixed-time AI was similar to that of drylot heifers consuming a corn-based growing diet.

**Castration and Morbidity and Their Effects on Performance, Carcass Quality and Price Differentials for Bulls and Steers**

*Massey et al., 2011, Kansas State University*

When purchasing feeder calves, bulls are typically discounted relative to steers. Determining the appropriate discount is difficult. Being able to calculate this discount under varying conditions would help stocker operators maintain a greater level of profitability or recognize opportunities to make more profit when excessive discounts are being applied. The objectives of this study were to determine how castration timing affects performance, morbidity and carcass quality and how morbidity affects performance and carcass quality.

- Results confirm that late-castrated bulls exhibit diminished performance and increased morbidity probabilities relative to early-castrated bulls.
- Increased morbidity also decreases ADG. However, castration timing and morbidity during the backgrounding period have minimal effects on carcass quality, with morbidity only affecting hot carcass weight, whereas castration timing only affects days to market and hot carcass weight.
- Based on 2009 market conditions, bulls should be discounted at feeder calf sales compared with steers. The average calf arrived at 460 lb. At this body weight, bulls should be discounted $5.00/cwt. relative to the same body weight steers.
- The discount increases to $5.44/cwt for 375 lb calves and decreases to $3.63/cwt for 550 lb calves.
- If ownership is retained through slaughter, required discounts change for all to $6.35/cwt., $1.81/cwt. and $3.17/cwt, respectively, for average (460 lb), light (375 lb) and heavy (550 lb) calves.

Note: In the 2010 sale barn data, bulls were discounted $6.31/cwt. to steers.
Survey of Quality Defects in Market Beef and Dairy Cows and Bulls Sold Through Livestock Auction Markets in the Western United States: I. Incidence Rates

Ahola et al., 2011, University of Idaho

A survey was conducted to quantify incidence of Beef Quality Assurance-related defects in market beef and dairy cows and bulls selling at auction during two seasons in 2008. Twenty-three BQA-related traits were evaluated by 9 trained personnel during sales at 10 livestock auction markets in Idaho (n = 5; beef and dairy), California (n = 4; dairy only) and Utah (n = 1; beef and dairy). Overall, 18,949 unique lots (8,213 beef cows; 1,036 beef bulls; 9,177 dairy cows; and 523 dairy bulls) consisting of 23,479 animals (9,299 beef cows; 1,091 beef bulls; 12,429 dairy cows; and 660 dairy bulls) were evaluated during 125 sales (64 spring, 61 fall) for dairy and 79 sales (40 spring, 39 fall) for beef.

- The majority of market beef cows and bulls (60.9% and 71.3%, respectively) were predominantly black-hided, and the Holstein hide pattern was observed in 95.4% and 93.6% of market dairy cows and bulls, respectively.
- Market cattle weighed 1,208 lb (beef cows), 1,656 lb (beef bulls), 1,450 lb (dairy cows) and 1,611 lb (dairy bulls).
- Most beef cows (79.6%) weighed 1,000 to 1,600 lb, and most beef bulls (73.8%) weighed 1,200 to 2,100 lb, respectively.
- Among market beef cattle, 16.0% of cows and 14.5% of bulls weighed less than 1,000 and 1,200 lb, respectively, and 63.7% of dairy cows and 81.5% of dairy bulls weighed 1,200 to 1,800 lb or 1,200 to 2,100 lb, respectively.
- Mean body condition score for beef cattle (9-point scale) was 4.7 (cows) and 5.3 (bulls), and for dairy cattle (5-point scale) was 2.6 (cows) and 2.9 (bulls).
- Some 16.5% of beef cows and 4.1% of beef bulls had a body condition score of 1 to 3, while 34.8% of dairy cows and 10.4% of dairy bulls had a body condition score of 2 or less.
- Emaciation (beef body condition score = 1, dairy body condition score = 1.0) or near-emaciation (beef body condition score = 2, dairy body condition score = 1.5) was observed in 13.3% of dairy cows and 3.9% of beef cows.
- Among beef cattle, 15.1% of cows and 15.4% of bulls were considered lame.
- In contrast, 44.7% of dairy cows and 26.1% of dairy bulls were lame.
- Ocular neoplasia (cancer eye) was observed in only 0.6% of beef cows, 0.3% of beef bulls, 0.3% of dairy cows and 0.0% of dairy bulls.
- However, ocular neoplasia was cancerous in 34.4% of beef bulls, 48.0% of dairy cows and 73.3% of beef cows.

In conclusion, numerous quality defects are present in market beef and dairy cattle selling at auction in the Western United States, which could influence their value at auction.

Quality Defects in Market Beef and Dairy Cows and Bulls Sold Through Livestock Auction Markets in the Western United States: II. Relative Effects on Selling Price

Ahola et al., 2011, University of Idaho

Relative effects of Beef Quality Assurance-related defects in market beef and dairy cows and bulls on selling price at auction was evaluated during 2008. The presence and severity of 23 BQA-related traits were determined during sales in Idaho, California and Utah. Overall, 18,949 unique lots consisting of 23,479 animals were assessed during 125 dairy sales and 79 beef sales.

- Mean sale price for market beef cows, beef bulls, dairy cows and dairy bulls was $45.15, $56.30, $42.23 and $55.10/cwt., respectively.
- Compared with a base body condition score 5 beef cow (on a 9-point beef scale), body condition score 1 ($13.01), 2 ($6.78), 3 ($5.09) and 4 ($2.12) cows were discounted, while premiums were estimated for body condition score 6 ($1.65), 7 ($1.65) and to 8 ($1.97).
- Compared with a base body condition score 3.0 dairy cow (on a 5-point dairy scale), more body condition resulted in a premium, while a less-than-desirable body condition score of 2.0 or 2.5 was discounted.
- Emaciated or near-emaciated cows (beef body condition score 1 or 2; dairy body condition score 1.0 or 1.5) were discounted.
- Compared with base cows weighing 1,200 to 1,400 lb, lighter weight beef cows were discounted, while heavier beef cows received a premium.
• Compared with a base dairy cow weighing 1,400 to 1,600 lb, lighter weight cows were discounted, while heavier cows (1,600 to 2,000 lb) received a premium.
• Beef and dairy cows with any evidence of lameness were discounted.
• Presence of ocular neoplasia in the precancerous stage discounted beef cows and discounted dairy cows, while at the cancerous stage, it discounted all cows.
• Hide color influenced selling price in beef cattle but had no effect in dairy cows.

Black cows received a premium of $1.61 compared to red.
• Animals that were visibly sick were discounted.

Results suggest that improving body condition score and body weight, which producers can do at the farm or ranch level, positively impacts sale price. Furthermore, animals that are visibly sick or have a defect associated with a possible antibiotic risk will be discounted. Ultimately, animals with minor quality defects should be sold in a timely manner before the defect advances and the discount increases.

**Cattle Temperament: Persistence of Assessments and Associations With Productivity, Efficiency, Carcass and Meat Quality Traits**

Café et al., 2010, University of New England, Australia

Relationships between temperament and a range of performance, carcass and meat quality traits in young cattle were studied in two experiments conducted in New South Wales and Western Australia, Australia. In both experiments, growth rates of cattle were assessed during backgrounding on pasture and grain-finishing in a feedlot. Carcass and objective meat quality characteristics were measured after slaughter. Feed intake and efficiency during grain-finishing were also determined in New South Wales.

The New South Wales experiment comprised Brahman (n = 82 steers and 82 heifers) and Angus (n = 25 steers and 24 heifers) cattle. In New South Wales, temperament was assessed by measuring flight speed (m/s on exit from the crush) on 14 occasions and by assessing agitation score during confinement in the crush (1 = calm to 5 = highly agitated) on 17 occasions over the course of the experiment. The Western Australia experiment comprised Brahman (n = 173) and Angus (n = 20) steers. In Western Australia, temperament was assessed by measuring flight speed on two occasions during backgrounding and two occasions during grain-feeding.

At both sites, a growth promotant (Revalor-H) was applied to half the cattle at feedlot entry, and the Brahman cattle were polymorphic for two calpain-system markers for beef tenderness.

• Temperament was not related to tenderness gene marker status in Brahman cattle and was not modified by implant treatment in either breed.
• The Brahman cattle had greater individual variation in and higher correlations within and between repeated assessments of flight speed and confinement in the crush score than the Angus cattle.
• Correlations of flight speed were higher than for repeated assessments of confinement in the crush score, and the strength of correlations for both declined over time.
• Average flight speed or confinement in the crush score for each experiment and location were more highly correlated than individual measurements, indicating that the average values were a more reliable assessment of cattle temperament than any single measure.
• In Brahman cattle, increased average flight speed and confinement in the crush score were associated with significant reductions in backgrounding and feedlot growth rates, feed intake and time spent eating, carcass weight and objective measures of meat quality.
• In Angus cattle, the associations between temperament and growth rates, feed intake and carcass traits were weaker than in the Brahmans, although the strength of relationships with meat quality were similar.