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## Calf Value Discovery Program

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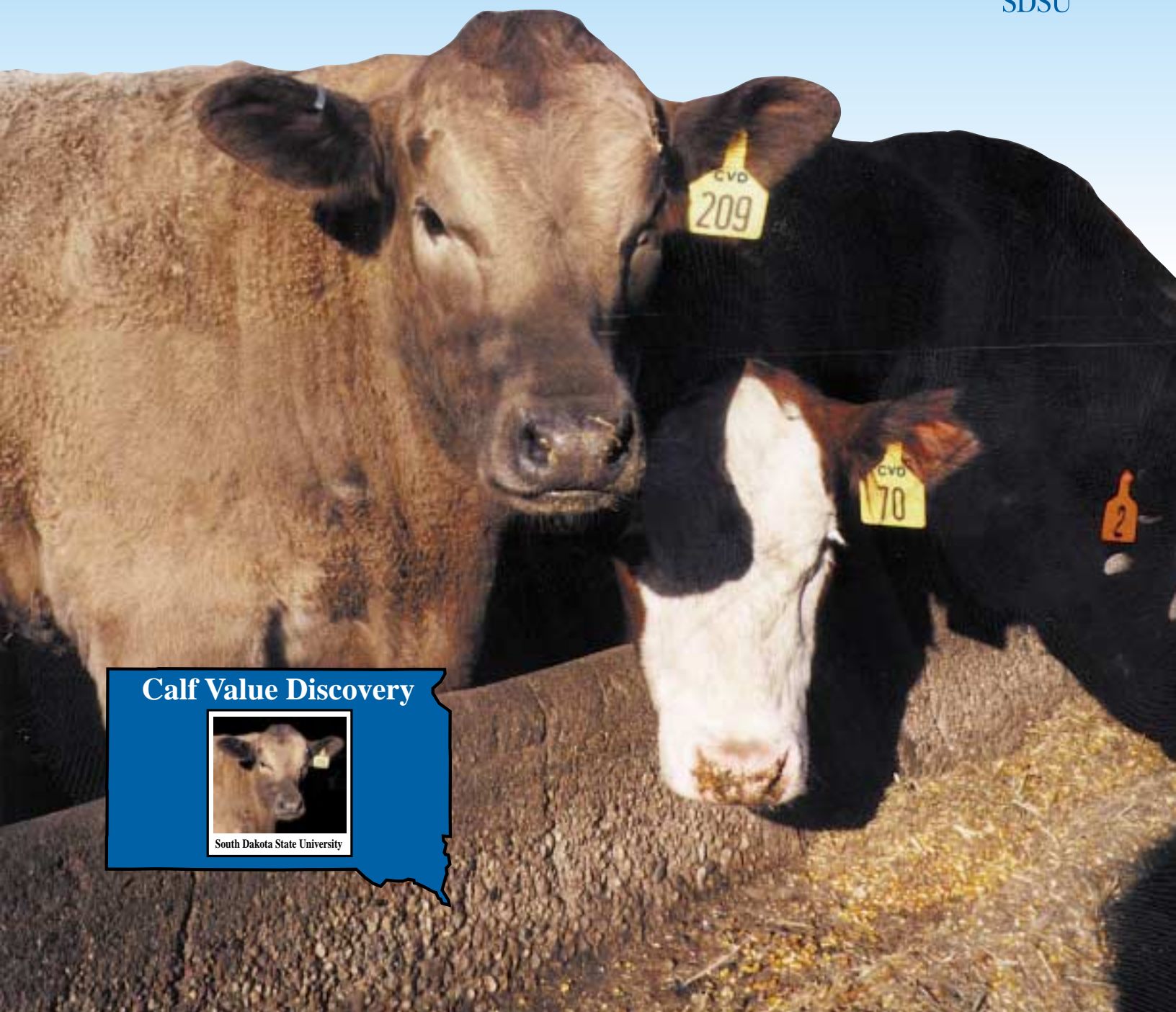
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# Calf Value Discovery Program

SOUTH DAKOTA STATE UNIVERSITY  
College of Agriculture & Biological Sciences  
Cooperative Extension Service



Calf Value Discovery



South Dakota State University

# CALF VALUE DISC

A feedlot performance and carcass data collection program conducted by South Dakota State University that enables producers to analyze their

- management strategies
- herd health programs
- genetics

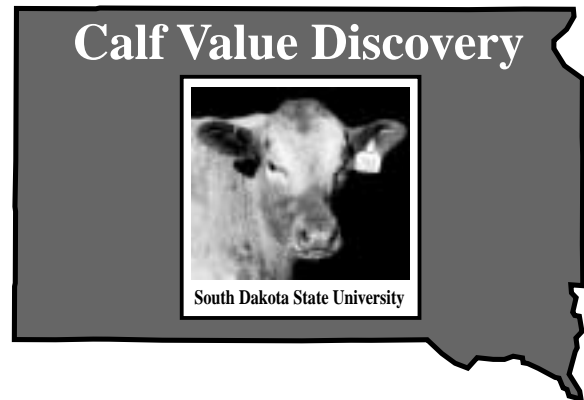
The Calf Value Discovery (CVD) Program allows producers to assess feedlot performance of their cattle against the cattle of other progressive producers. The data from this project gives producers the opportunity to evaluate average daily gain, feedlot health, and carcass characteristics. Combined, the data provides a basis for calculating calf value and a benchmark upon which to base genetic and marketing decisions.

A producer can consign a whole pen of calves to the CVD program or minimize risk by selecting a representative sample from the herd. The producer completes a survey at feedlot entry that describes health and management practices at the ranch. An assessment of the health status of the calves is made upon arrival, along with a review of the current vaccination program at the home farm or ranch, to help identify any herd health problems. At harvest, a veterinarian inspects lungs and livers; this research study, which requires several years to collect the information, will help improve herd health management programs. Generating this data is important in trying to solve problems already identified in the beef industry.

Consumer acceptance is a major concern facing the beef industry. Over the last 20 years, the decline in beef consumption has led to another problem — reduced market share. This economic loss has made it necessary for beef producers to improve the quality and consistency of their end product. Today, the demand is for high-quality lean beef with a minimum of waste in the form of either fat or bone.

Beef quality characteristics are important because they are directly related to the palatability of cooked meat and to the appearance of meat in the meat counter; therefore, the producer must analyze the potential eating experience that their product will bring the consumer. This is accomplished by retrieving carcass data and by reviewing health and production management strategies.

To understand how these factors are related, producers need to focus on all aspects of production — not just on how their calves perform after weaning. All management factors that occurred to the calf prior to arrival at the feedlot as well as in the feedlot phase affect quality. The interaction between animal health and production management strategies that occur on the ranch plays a large role in feedlot performance. Improving growth and carcass traits can be a slow process; however, management problems that



affect feedlot performance can be corrected at a much faster pace as compared to genetic traits (Boleman et al., 1995).

Health and management factors become pivotal when dealing with pneumonia and liver abscesses. Condemnation losses were estimated to account for a \$3.90/head loss (Gill and Smith, 1995). However, the trim/condemnation loss of pneumonia and liver abscesses is minimal compared to the loss from reduced feedlot performance (Gill and Smith, 1995). Pneumonia appears to be affected by many management factors including vaccination programs, preweaning schedules, and creep feeding.

Pneumonia costs the producer more than just reduced average daily gains — it also decreases marbling and tenderness. As pneumonia severity increases, marbling scores decrease (Whitley et al., 1998). Calves with lung lesions also have higher shear force values, less internal fat, and lighter hot carcass weights than calves without lung lesions (Gardner et al., 1999).

Tenderness is influenced by marbling as well as other factors. Inadequate marbling reduces palatability and results in a greater proportion of bad dining experiences by consumers (Morgan, 1995). Estimates are that the beef industry lost more than \$2 million in 1995 due to problems associated with toughness. Toughness also caused a \$7.64/head loss due to consumer complaints.

The CVD program enables producers to evaluate their operations and make wiser decisions that will improve their production efficiency. Improving the quality and consistency of their end product will help solve the beef industry's problems.

# OVERY PROGRAM

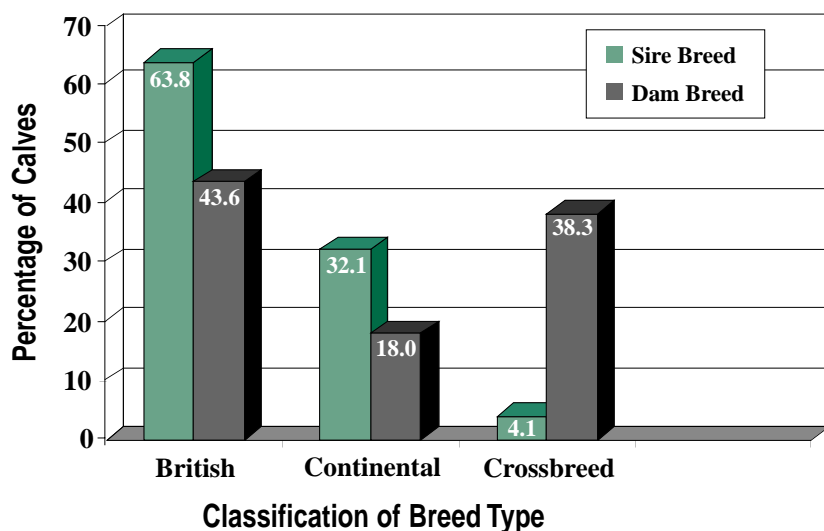
## 1998–99 CALF VALUE DISCOVERY PROGRAM SUMMARY REPORT

Sixty-one producers with 558 entries participated in the CVD program in 1998–99. Calves were fed at two feedlot locations. They were placed on feed November 2 and 3 at H.L. Brunner & Sons Feedlot, Vale (**West**) and November 5 and 6 at Vander Wal Yards, Bruce (**East**). Upon arrival, steers were vaccinated with Bovishield 4, One Shot Pasteurella, and 7-Way Clostridial at Vanderwal Yards and with Pyramid 4, 7-Way Clostridial, Nasalgen, and PresponseHM at Brunner & Sons. Steers were also eartagged and weighed, and blood was drawn to test for titers. A price slide for in value on each steer was generated using data from 19 sale barns in South Dakota [ $102.757 - (0.0419 * \text{In weight})$ ].

At both feedlots, all steers were fed in the same pen. After 28 days on feed, steers were implanted with Synovex S and then reimplanted at 100 days before the average slaughter date with Synovex Plus. After 35 days on feed, the calves were placed on an accelerated-finishing program which contained 0.60 mcg NEg/lb and 12.5% crude protein on a dry matter basis. Steers were marketed on a carcass basis when they reached acceptable weight and finish standards.

Marquette Bank, Watertown, and First Western, Sturgis, financed feed, yardage, processing, and medicine costs. Upon completion of the program, all carcass and performance information was returned to the producer along with a financial summary.

### BREEDS REPRESENTED



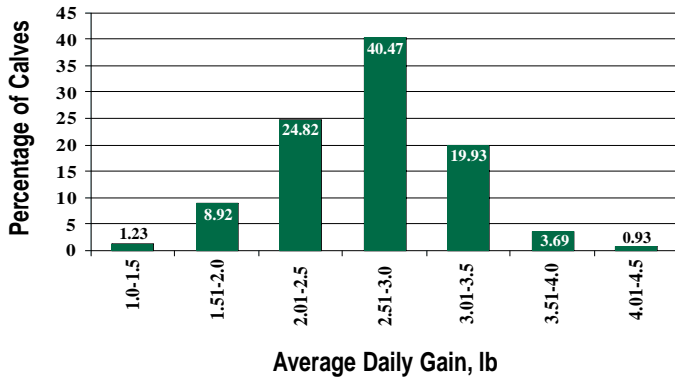
◀ A range of genetics was represented in the program with 15 different sire breeds/combinations and 31 different dam breeds/combinations.

### 1998–99 CALF VALUE DISCOVERY PROGRAM

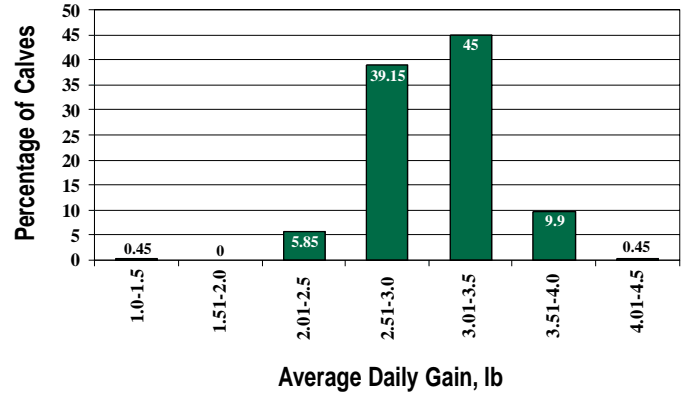
	Nov.—West	Nov.—East	Feb.—West
Head In	169	224	165
Head Out	164	222	162
In Weight	533	565	685
Out Weight	1216	1205	1186
DOF	223	210	158
F/G (pen)	6.35	6.40	6.89
Total Cost of Gain (\$/cwt)	46.04	41.33	48.57
Feed Cost of Gain (\$/cwt)	33.87	27.45	36.26
HCW	726	747	708
Price (\$/cwt HCW)	\$97.71	\$100.23	\$95.49

These two graphs show the variation among cattle for average daily gain. Weights used to calculate gain were in weight, the weight taken upon arrival, and out weight, the weight taken before slaughter (with a 4% pencil shrink). The average in weight was 590 lb with a standard deviation of 112 lb; the average out weight was 1164 lb with a standard deviation of 121 lb. The average daily gain for steers in the East feedlot was 3.05 lb/day with a range of 1.34 to 4.39 lb/day. In the East feedlot, 94.5% of the steers gained more than 2.51 lb/day. Steers in the West feedlot had an average daily gain of 3.06 lb/day with a range of 1.34 to 4.85 lb/day. In the West feedlot, 65.02% of the steers gained more than 2.51 lb/day.

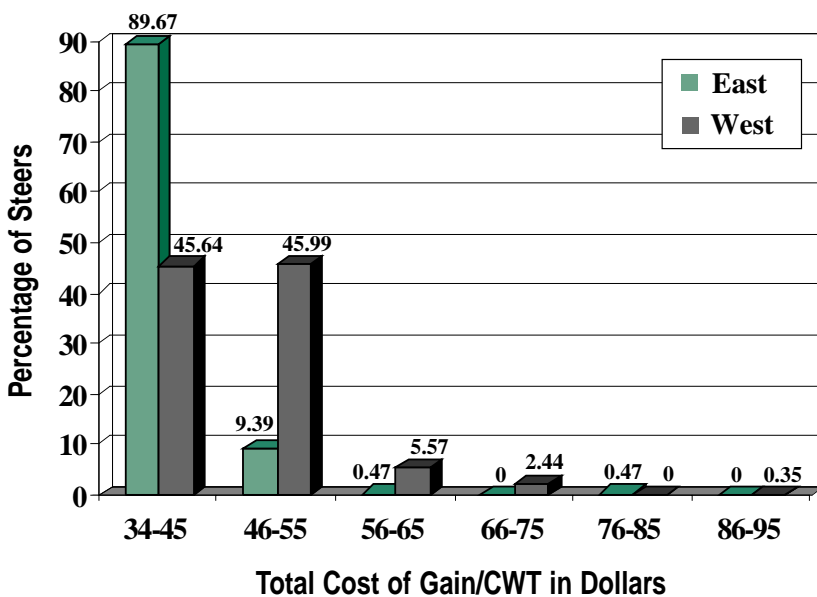
### CUMULATIVE AVERAGE DAILY GAIN (WEST)



### CUMULATIVE AVERAGE DAILY GAIN (EAST)

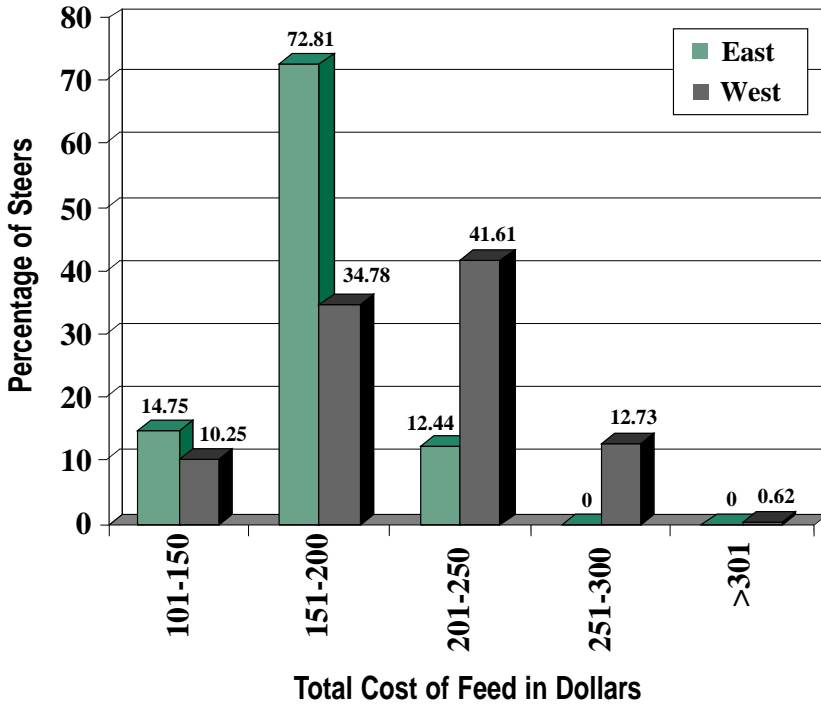


### TOTAL COST OF GAIN PER CWT



◀ The total cost of gain per cwt for the East feedlot ranged from \$34.67 to \$77.51 and averaged \$41.33. In the West, it ranged from \$34.15 to \$94.60 and averaged \$47.29.

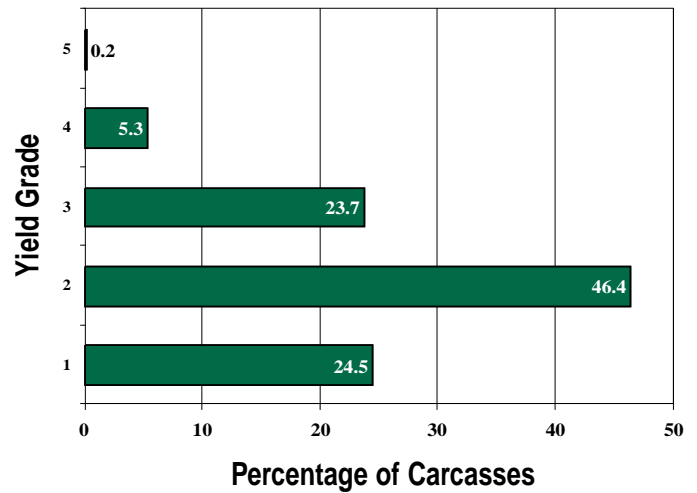
## FEED COST



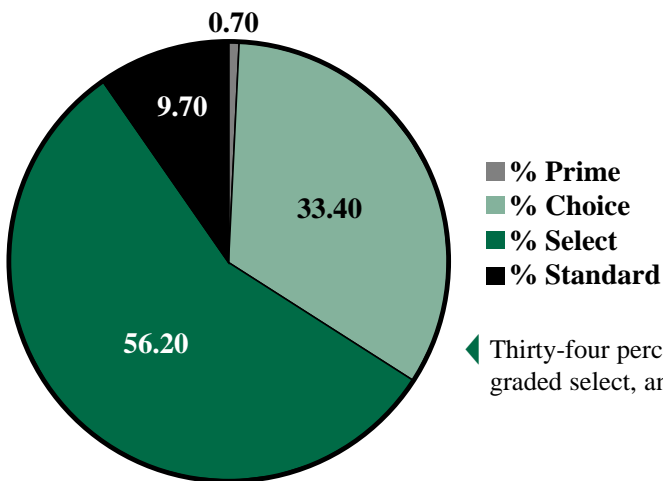
Feed cost is the total dollars of feed per steer. In the East feedlot, feed cost averaged \$174.97 and ranged from \$121.27 to \$250.96. In the West feedlot, feed cost averaged \$204.46 per steer and ranged from \$107.65 to \$308.67. The advantage in the East was not due to performance but to feed cost, namely corn price.

Seventy percent of the carcasses had a yield grade of 1 or 2 with the average being 2.6. Carcasses ranged from .79 to a 5.23 calculated yield grade.

## USDA YIELD GRADES



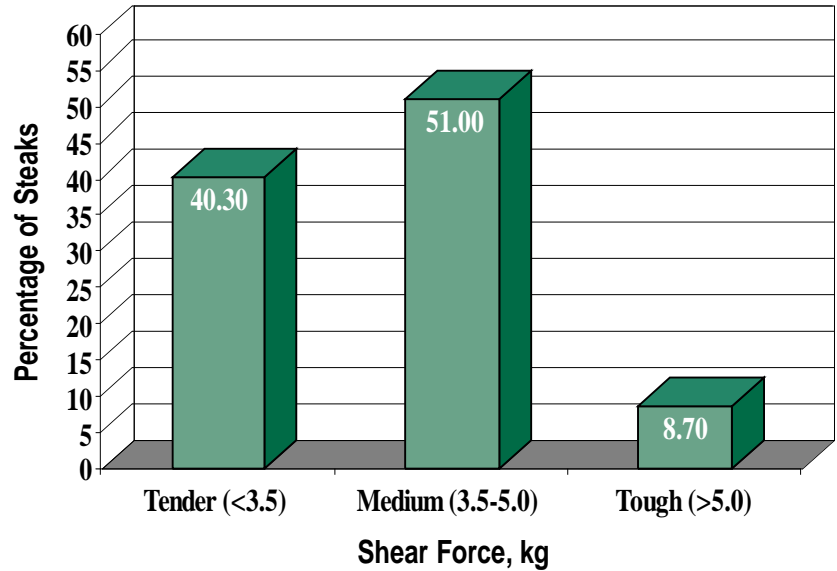
## USDA QUALITY GRADES



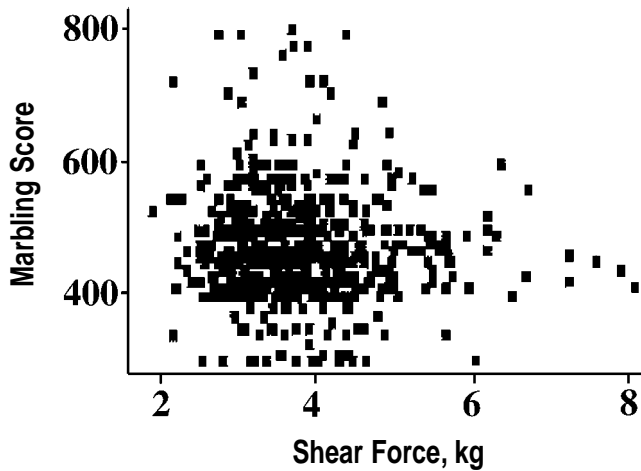
Thirty-four percent of the steers graded choice or higher, 56.2 % graded select, and 9.7 % graded standard.

After the steers were marketed, a portion of the longissimus dorsi was removed from the carcass. Warner-Bratzler Shear Force was performed on a rib steak to determine tenderness. The cut was classified as tender, medium, or tough based on the amount of force required to shear the steak.

### WARNER-BRATZLER SHEAR FORCE



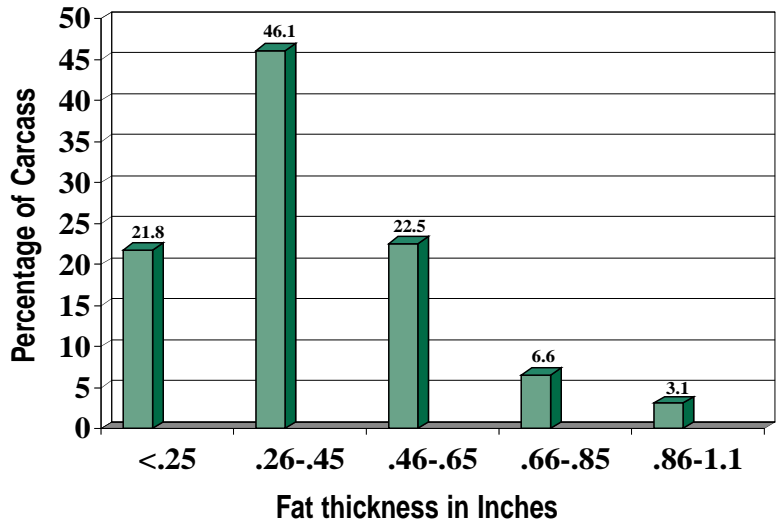
### MARBLING SCORE AND SHEAR FORCE



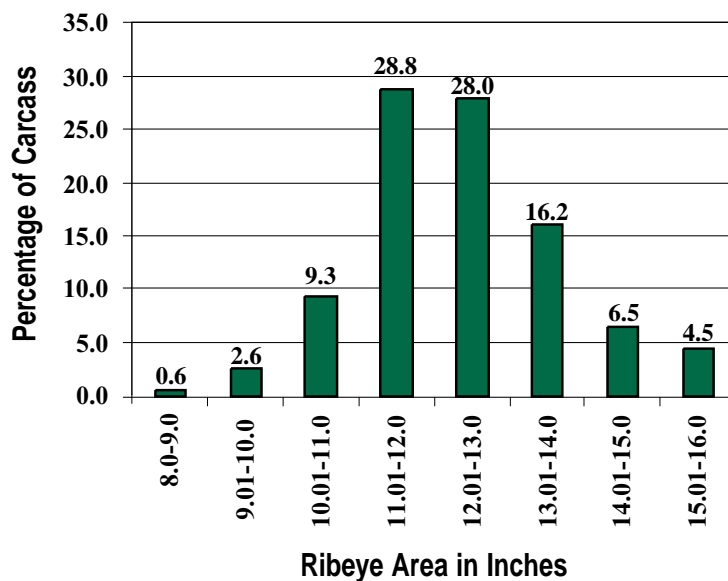
Most research has indicated that steaks with lower shear force values usually have higher marbling scores. However, this scatter plot of marbling scores and shear force values shows that the carcasses from the Calf Value Discovery Program did not support those findings. Thus, it is possible to have tender cattle that are not highly marbled.

The average 12th rib fat thickness was .41 inch with a range of .1 to 1.1 inches of backfat. Forty-six percent of the carcasses were within the range of .26-.45 inch of external fat; this is ideal to have acceptable yield grades. Fat thickness is an important measure as it is inversely related to retail yield.

### 12TH RIB FAT THICKNESS



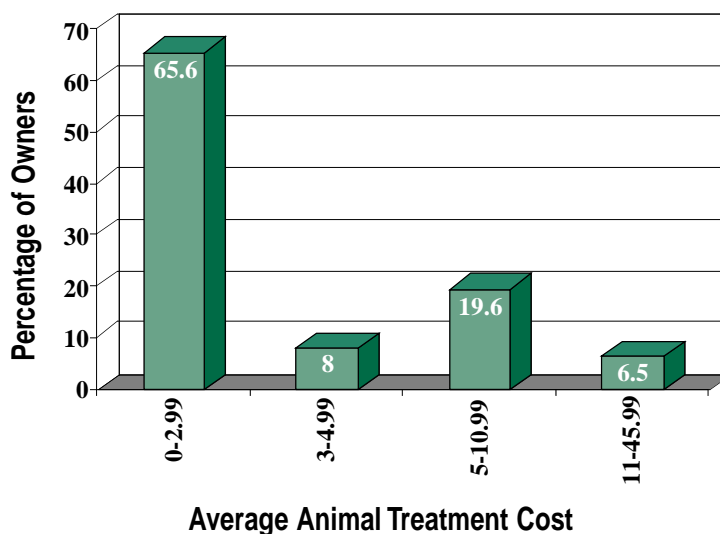
## RIBEYE AREA



◀ The range in ribeye area was from 8.4 to 18.6 sq inches with a mean of 12.5 sq inches. Fifty-eight percent of the steers had a ribeye area of more than 12 sq inches. A typical ribeye area would be equivalent to 1.75 sq inches/cwt of hot carcass weight.

▶ The average per-calf treatment cost was less than \$5.00 for 73% of the owners. However, nearly 25% of the owners had treatment costs which exceeded \$5.00 per head, with 6.5% of the owners having treatment costs greater or equal to \$11.00 per head. If a long-term average profit per head in the feedlot is nearly \$10, then 6.5% of the owners consigned groups of cattle that would not be expected to breakeven, and another 19.6% of owners consigned cattle that would significantly decrease the feeder's profit.

## AVERAGE ANIMAL TREATMENT COST/OWNER



## TABLE OF HEALTH EVENTS

Health Events for 393 Calf Feds	Number of Calves (% of total)
Ill 1 time	48 (12.2%)
Ill >1 time	18 (4.6%)
Affected w/respiratory disease (1 or > times)	46 (11.7%)
Affected w/other disease	20 (5.1%)
Affected w/CVP	55/280 (19.6%)
Condemned livers	36/280 (12.9%)
Died in feedlot	4 (1.0%)
Realized in feedlot	3 (0.8%)

◀ A total of 558 steers were consigned to the program. Of these, 393 were calf feds, defined as newly weaned calves placed on an accelerated-finishing program for 180-200 days. The table shows the health events for the calf feds only. At slaughter, 280 of the carcasses showed lung lesions, indicating prior pneumonia and liver abscesses. Preliminary research has indicated many cattle have lung lesions at slaughter but were not detected as ill in the feedlot.



The variability seen in the carcass data collected from this program represents the variability seen in the beef industry. Producers can use information from the CVD program to improve the consistency and uniformity of their product. From these data, they learn the value of the product their genetics produced and they can use this information to make more knowledgeable decisions in their operations. Non-conforming cattle can be eliminated. Problems with health and management can be corrected. These changes will allow producers to improve the overall efficiency of their operations in order to remain competitive and survive.

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