UNIVERSITY OF ARKANSAS
DIVISION OF AGRICULTURE

Cooperative Extension Service

University of Arkansas, United States Department of Agriculture, and County Governments Cooperating

Arkansas Steer Feedout Program

2004-2005 Summary Report

USDA Prime ADG: 3.81
Yield Grade: 2 Net Return: $288

USDA Choice ADG: 3.67
Yield Grade: 2 Net Return: $220

USDA Select ADG: 3.37
Yield Grade: 2 Net Return: $100

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Arkansas Steer Feedout Program
2004-2005

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Animal Science Section

Introduction

The University of Arkansas Cooperative Extension Service Steer Feedout Program provides cow-calf producers the opportunity to acquire information about postweaning performance and carcass characteristics of their calves. It also points out factors that influence value beyond the weaned calf phase of beef production. The program is not a contest to compare breeds or breeders or to promote retained ownership. The Feedout Program creates an opportunity for producers to determine how their calf crop fits the needs of the beef industry. The program also provides the information needed to determine if changes in genetics and/or management factors are warranted to be competitive in beef production.

Calf Management

On November 4, 2004, 85 steer calves from 13 Arkansas producers representing 9 counties were placed on feed at Oklahoma Feeders Inc., Coyle, Oklahoma. Calves were eartagged, weighed and processed on November 5, 2004. Calves were placed in one pen. Management factors such as processing, medical treatments and rations were the same as the other cattle in the feedyard. The feedyard manager and Extension personnel selected animals for harvest when they reached the weight and condition regarded as acceptable for the industry and market conditions. Cattle were sold on a carcass basis with premiums and discounts for various quality grades, yield grades and carcass weights. Feed, processing and medicine costs were financed by the feedyard. All expenses were deducted from the carcass income, and proceeds were sent to the owners.

Of the 85 steers that started on feed in the fall, three died (3.5% death loss). Three calves were deemed as realizers and sold to local markets, and one carcass was pulled by Tyson's for a quality control check. These four calves were not included in the statistical analyses. Therefore, 78 steers were used in the analyses.

In-Depth Summary of the 2004-2005 Feedout Program

Health Status and Death Loss

The sick pull rate was very high with 63 calves (80%) treated for sickness. Very soon after the steers arrived at the feedyard, it began to rain. It rained off and on for the first three to four weeks on feed. Consequently, the steers and the pens were very wet. Oftentimes when this situation happens, the steers appear apathetic with heads drooped and feed intake in reduced. At this stage, it is very difficult to tell if the steer is just reacting to the wet weather conditions or it is sick. The feedyard manager decided to implement a preventive treatment. Depending on body temperature, calves received a preventive treatment of Baytril and Banimine, NuFlor or no treatment (normal body temperature). Sixteen (20%) steers did not received any treatment (healthy), 33 steers (42%) received the preventive treatment (prevent) and 30 steers (38%) received numerous treatments (sick). The average medicine costs for the prevent and the sick steers were $34.05 and $63.33, respectively. The average medicine cost for the entire pen was $43.78 per head.

The health status of cattle in the feedyard usually has a major impact on performance and profit. The following analysis included the calves that received the preventive treatment and calves that were pulled and treated. Healthy steers had higher feedlot net returns ($794) than steers that became sick ($672; $P < 0.002$). The prevent steers' feedlot net returns were intermediate ($733). The percentage of healthy, prevent and sick steers that graded USDA Choice were 44%, 58% and 37%, respectively ($P < 0.001$).

There were no differences between healthy, prevent and sick steers for average daily gain, hot carcass weight, feed cost per pound of gain, total cost per pound of gain, dressing percentage, yield grade, ribeye area, and ribeye area per cwt. of carcass weight ($P > 0.10$). Previous Arkansas Feedout data indicates that health status (healthy vs. sick) negatively impacts feedlot and carcass performance. Because these performance indicators were not affected by health status in this year's feedout and due to typical animal behavior due to wet weather, one could question if all of the treatments were necessary. Granted that this is a hindsight viewpoint, and given the same situation, the treatment approach might not be different.

Nevertheless, producers need to adhere to a sound health management plan. By implementing a sound vaccination program at the ranch of origin, predictability and consistency of calves increases along with product value, and calves have the opportunity to express their genetic potential. Most deaths in a feedyard are due to pneumonia

Variability in health is built into the calf market. Buyers factor this into what they are willing to pay for calves. Cattle feeding operations exist that are willing to pay more for good quality cattle that have been properly immunized and properly backgrounded. The amount they are willing to pay is dictated by the increase in the added value of benefits and the quantity of similar type cattle, which can be purchased and managed as a unit.

Financial Results

Table 1 is a summary of the financial statement.

Table 1. Financial Results Summary, 2004-2005[a]

	Average per head ($)	Range ($)
Gross Income	1,072.78	651 to 1,456
Expenses		
Feed	273.12	210 to 346
Freight, yardage, processing, interest, etc.	38.39	33 to 44
Medicine	43.78	0 to 129
Total	350.55	278 to 432
Feedlot Net Return	722.23	367 to 1,035
In Value	614.00	224 to 824
Calculated Return	104.46	-179 to 339

[a] 78 head

A farm break-even value was calculated by dividing the feedlot net return by the in weight. If the feeder calf could have been sold in the fall of 2004 for more than the farm break-even value, financially it would have been better to sell the calf last fall than to feed it. The steers' farm break-even averaged $1.25 per pound (average in weight was 579 pounds) and ranged from $0.70 to $1.66 per pound. For the week ending November 5, 2004, 550 to 600 pound steers were selling for $1.07 to $1.17 per pound.

Table 2 is a financial summary of the bottom 25%, top 25% and average for steers based on feedlot net return.

Table 2. Financial Summary of the Bottom 25%, Top 25% and Average Steers Based on Feedlot Net Return

	Bottom 25%	Top 25%	Average
Number of Steers	20	19	78
Gross Income per head ($)	890[a]	1,256[b]	1,073
Carcass Value Per Lb. ($)	1.38[a]	1.52[b]	1.44
In Value per head ($)	568[a]	659[b]	614
Medicine per head ($)	52.72[c]	28.30[d]	43.78
Feed Cost per head ($)	243[a]	301[b]	273
Total Expense per head ($)	332[c]	370[d]	351
Feedlot Net Return per head($)	558[a]	886[b]	722
Calculated Return per head ($)	-10[a]	227[b]	104
Days on Feed	193	193	193
Feed Cost Per Lb. of Gain ($)	0.48	0.47	0.46
Total Cost Per Lb. of Gain ($)	0.65[c]	0.57[d]	0.60

[a, b] Values within rows with unlike superscripts are different (P < 0.0001).
[c, d] Values within rows with unlike superscripts are different (P < 0.01).

Performance Results

The average steer in weight and final weight were 579 pounds (range = 416 to 816 lb.) and 1,182 pounds (876 to 1,459 pounds), respectively. Average daily gain was 3.10 pounds and ranged from 1.85 to 4.18 pounds. The performance summary of the bottom 25%, top 25% and average based on feedlot net return is shown in Table 3.

Table 3. Performance Summary of the Bottom 25%, Top 25% and Average Steers Based on Feedlot Net Return

	Bottom 25%	Top 25%	Average
In Weight (lb.)	528[a]	646[b]	579
Muscle Score	1.8	1.7	1.7
Frame Score			
Large	35%	42%	35%
Medium	65%	58%	65%
Final Weight (lb.)	1,045[a]	1,301[b]	1,182
Average Daily Gain (lb.)	2.68[a]	3.39[b]	3.10

[a, b] Values within rows with unlike superscripts are different (P < 0.001).

Carcass Results

Overall, 47 percent of the steers graded Choice, which is lower than the national average (56.8%). One percent graded Prime, and four head received a premium for Certified Angus Beef. Table 4 summarizes the carcass data.

Table 4. Carcass Summary of the Bottom 25%, Top 25% and Average Steers Based on Feedlot Net Return

	Bottom 25%	Top 25%	Average
Hot Carcass Weight (lb.)	646[a]	830[b]	743
Carcass Value ($/lb)	1.38[a]	1.52[b]	1.44
Dressing Percentage	61.8%[e]	63.8%[f]	62.8%
Ribeye Area (sq. in.)	11.4[a]	13.6[b]	12.6
Backfat	0.35[c]	0.46[d]	0.41
REA per 100 lb. carcass weight	1.77[c]	1.65[d]	1.71
Quality Grade			
Prime	0%[a]	5%[b]	1%
Choice	10%[a]	89%[b]	47%
Select	40%[a]	5%[b]	35%
No Roll	50[a]	0%[b]	17%
Yield Grade	2.05	2.42	2.80

[a, b] Values within rows with unlike superscripts are different (P < 0.0001).
[c, d] Values within rows with unlike superscripts are different (P < 0.001).
[e, f] Values within rows with unlike superscripts are different (P < 0.01).

Industry Standards

The carcass standards for the beef cattle industry are Choice quality grade, yield grade of less than 3.5, and hot carcass weight between 550 and 950 pounds. Forty-six percent of the steers fit these industry standards. Table 5 shows the steers that met the industry standards averaged $130 per head more than those that did not fit the industry standards ($P < 0.001$). They had higher carcass values because they graded Choice and were not discounted for yield grades greater than 4.0 or for carcasses outside the weight range. The average breed composition of those cattle that fit the industry standards was 17% Continental, 76% English and 7% Brahman. Of the steers that were in the top 25% based on feedlot net return, 89% met the industry standards, and for those in the bottom 25% based on feedlot net return, 90% did not meet the industry standards.

Table 5. Feedlot Net Return, Average Daily Gain and Carcass Value for Steers that Did or Did Not Meet Industry Standards[a]

Item	Met Standards	Did Not Meet Standards	Difference
Feedlot Return	$793	$662	$130[b]
Average Daily Gain (Lb)	3.11	3.11	0.
Carcass Value	$1.37	$1.52	$0.15[b]

[a] USDA Quality Grade Choice, yield grade ≤ 3.5 and carcass weight of 550 to 950 pounds

[b] $P < 0.001$

Factors Affecting Steers' Feedlot Net Return

Listed below are the significant ($P < 0.01$) factors that affected feedlot net return for steers in the 2004-2005 program. Factors are listed in descending order of importance.

Rank	2004 – 2005
1.	Hot Carcass Weight
2.	Quality Grade
3.	Medicine Cost
4.	Yield Grade
5.	Dressing Percentage

1. **Hot Carcass Weight** - The relationship between hot carcass weight and feedlot net return was positive. As hot carcass weight increased, so did feedlot net return. The more carcass pounds sold, the greater the gross income and feedlot net return. Table 6 shows the relationship between hot carcass weight, total cost of gain, average daily gain, feedlot net return and calculated return.

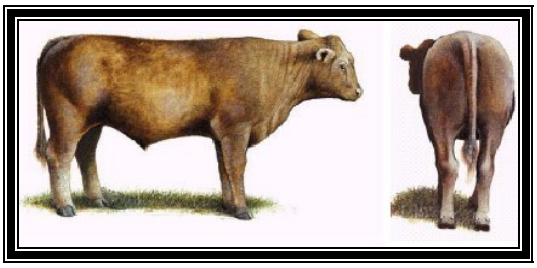
Table 6. Summary of Hot Carcass Weight, Total Cost of Gain, Average Daily Gain, Feedlot Net Return and Calculated Return

Hot Carcass Weight (lb.)	Total Cost of Gain ($)	ADG (lb.)	Feedlot Net Return per Head ($)	Calculated Return per Head($)
< 600	0.75	1.9	418	-145
600-699	0.64	2.7	612	38
700-799	0.56	3.2	741	131
800-899	0.59	3.5	864	172

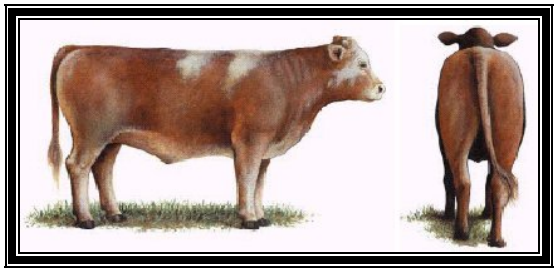
Hot carcass weight discounts were observed for carcasses weighing less than 550 pounds and greater than 950 pounds.

Factors that affect hot carcass weight include frame size, muscle thickness and backfat. Muscle thickness is a major factor that relates to carcass weight. Thickness, depth and fullness of quarter, and width (without excessive fat) of back, loin and rump are indications of muscling. Muscling is inherited through the sire and dam.

The current USDA Feeder Cattle Grades utilize four muscle thickness scores (1 = thick, 2 = slightly thick, 3 = narrow and 4 = very narrow). Thickness is related to muscle-to-bone ratio at a given degree of thickness. Thicker muscled animals will have more lean meat. "Double-muscled" animals are included in the Inferior grade (unthrifty animals). Although such animals have a superior amount of muscle, they are graded U.S. Inferior because of their inability to produce acceptable degrees of meat quality.

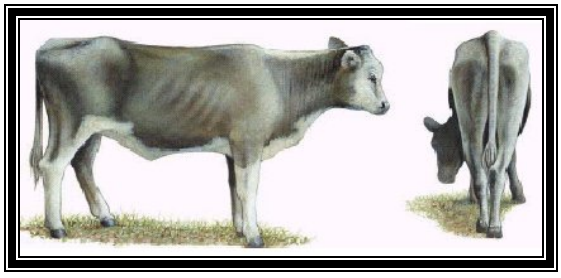


Muscle Score 1



Muscle Score 2

Muscle Score 3



Muscle Score 4

The ideal calf should be Feeder Cattle Grade U.S. 1. Number 1 is thrifty and moderately thick throughout. They are moderately thick and full in the forearm and gaskin, showing a rounded appearance through the back and loin with moderate width between the legs, both front and rear.

2. **Quality Grade** - Cattle that graded Prime, Choice, Select, and No Roll had feedlot net returns of $850, $806, $683 and $561 per head, respectively. All feedlot net returns based on quality grades were significantly different ($P < 0.0001$) except the feedlot net returns between Select and No Roll. Marbling is the primary factor that affects a calf's ability to grade Choice. Three main factors that affect marbling are: (1) the genetic ability to marble; (2) the maturity or the physiological age, not the chronological age; and (3) ration. Some cattle breeds report marbling EPD's in their sire summaries. Carcass traits such as marbling are highly heritable; therefore, selecting high marbling EPD bulls can be effective for improving the marbling ability of their calves. Breeds can also influence a calf's ability to grade Choice. Calves with a high percentage of English breeding usually have an increased ability to grade Choice.

USDA Select
Yield Grade: 1
ADG: 2.80 lb.
Calculated Net Return: $173

USDA Select
Yield Grade: 2
ADG: 3.55 lb.
Calculated Net Return: $154

USDA Select
Yield Grade: 3
ADG: 3.26 lb.
Calculated Net Return: $90

Physiological age influences frame score. Large frame cattle must be older (chronologically) to reach the same physiological age to express marbling as compared to smaller frame cattle. Steers should be medium to large frame, and extremes at both ends of the scale (small and extremely large) should be avoided.

Cattle are more likely to grade Choice at a lighter weight when fed a high concentrate ration versus a high forage diet. Successful feedlots feed a high concentrate ration to finishing cattle; therefore, cattle diet was not a limiting factor for steers in this program.

3. **Medicine Cost** - Healthy calves outperformed sick calves. A good preconditioning vaccination program will not guarantee a healthy feedyard calf, but it is the best management tool available. Healthy calves had a higher feedlot net return ($794 vs. $672 per head) than calves that were treated for illness. A higher percentage of healthy and prevent steers graded Choice than did the sick calves.

4. **Yield Grade** - As yield grade increased from 1 to 3, feedlot net return changed very little ($760, $700 and $748 per head for yield grades 1, 2 and 3, respectively). There were no significant differences between feedlot net returns for Yield Grades 1 and 3, but feedlot net returns for Yield Grade 2 tended to be less than for Yield Grades 1 and 3. There was no Yield Grades 4 or 5's. Backfat, ribeye area, hot carcass weight and percentage of kidney, pelvic and heart fat are the factors that determine yield grade. As yield grade (1 to 4) increases, the amount of fat increases in relation to the amount of lean.

   For the 2004-2005 feedout, the price discount between yield grades 1 and 2 was only $4.00 per cwt and the price discount between yield grades 2 and 3 was $5.00 per cwt. There was a general trend that as the yield grades went from 1 to 3, hot carcass weights also increased (711, 718 and 793 for Yield Grades 1, 2 and 3, respectively). Therefore, for increase in hot carcass overcompensated for the decrease in selling price as yield grade increased.

5. **Dressing Percentage** - The relationship between dressing percentage and feedlot net return was positive. As dressing percentage increased, so did feedlot net return. Many of the factors that affect hot carcass weight (addressed in Number 1) also affect dressing percentage. The top 25% of steers (based on feedlot return) had a dressing percentage of 63.8% compared to 61.8% for the steers in the bottom 25%.

No Roll
Yield Grade: 1
ADG: 2.15 lb.
Calculated Net Return: -$29

No Roll
Yield Grade: 2
ADG: 3.82 lb.
Calculated Net Return: $58

No Roll
Yield Grade: 3
ADG: 3.02 lb.
Calculated Net Return: $86

Summary

The purpose of the Arkansas Steer Feedout Program is to provide the opportunity for cow-calf producers to determine how their cattle fit the needs of the industry. With the large price spread between Choice and Select, it was very important to the "bottom line" that calves graded Choice. The program demonstrates that when cattle are sold on a grade and yield formula, it is very important that the cattle grade Choice and yield grade less than 3.5. Whether cattle are sold on a grade and yield formula or not, the industry wants cattle that do grade and yield. No matter the selling formula used (included live pricing), quality grade and yield are considered when determining the bidding price.

We want to congratulate the producers who participated in the 2004-2005 Steer Feedout Program. It takes courage to put calves in the feedyard and obtain this data. Hopefully, these cattle producers will take this information and make beef cattle genetic changes to improve their cattle herds.

The University of Arkansas Cooperative Extension Service would like to thank Farm Credit Services of Western Arkansas for supporting the Steer Feedout Program.

Arkansas Steer Feedout Program
2005 - 2006

An Information Feedback System for the Beef Industry

■ Nominations must be received by October 3, 2005 ■
■ Five Head Minimum per Consignor ■
■ $25 per Head Nomination Fee ■
■ Cattle must weigh 500-850 pounds upon arrival ■

DELIVERY DATE:
Wheeler Bros. Feedyard, Watonga, OK
November 10, 2005 by 5:00 p.m.

MAIL ENTRIES TO:
Brett Barham
Arkansas Steer Feedout Program
PO Box 391
Little Rock, AR 72203

1. A producer may consign as many lots as desired. A lot consists of five steers. Each consignor must have a minimum of five head, or one lot. When nominations are received, producers will be sent a background information form that must be fully completed and returned before entries are final.
2. **Only calves weighing 500-850 pounds upon arrival will be accepted**. A feedyard ear tag for each calf will be mailed to the producer through the county agent. Each calf must have the ear tag in place when the calves arrive at the feedyard. Each calf should also be tagged with a ranch ear tag. This will provide a double identification system. Place the feedlot ear tag in the left ear.
3. It is strongly recommended that the calves are backgrounded prior to leaving the farm. A general recommendation would be to wean 45 days prior to shipment (November 10, 2005). At the time of weaning, vaccinate with a modified live virus vaccine (IBR-PI3-BVD-BRSV). Revaccinate 2 weeks after the first vaccination. Consult with your local veterinarian to assess what other health needs should be addressed.
4. Assistance will be provided in coordinating shipment to the feedyard. Indications of requests for this type of assistance must be made on the nomination form and **must be received by October 3**. If a producer would like to deliver their own calves, they must arrive at Wheeler Bros. Feedyard on November 10, 2005 by 5:00 p.m. If you plan to transport your own cattle, call Wheeler Bros. Feedyard (580-623-4934) for directions and to make delivery arrangements.
5. Upon arrival, cattle will be processed according to standard feedyard procedure.
6. Cattle will be sorted into an appropriate number of expected outcome groups based on weight, frame size and flesh condition.
7. Animals that require treatment for any illness will be treated according to guidelines established by the feedyard veterinarian. Costs of treatment will be charged to the owner. The feedyard management and the Arkansas Steer Feedout Program management will make every effort to safeguard the health of all animals, but will assume no responsibility for death loss or sickness.
8. After an acceptable length of time, calves that are not achieving an economic rate of gain will be sold as realizers and the proceeds placed in escrow for disbursement at the end of the program. Owners will be notified when such calves are salvaged and when one of their calves dies.
9. Feed consumption for each pen will be determined at the time of close out. Individual calf consumption will be prorated on the in weight and average daily gain.
10. Charges to be assessed each entry at the end of the feeding period include: (a) processing fee, (b) yardage, (c) medicine costs, (d) feed cost, (e) trucking costs, (f) items A thru E will be financed at the prevailing interest rate and (g) Beef Check Off ($1.00/head).
11. Entries will be marketed when individuals reach the weight and condition regarded as acceptable by the industry. The feedyard manager will make this decision.
12. Calves will be weighed individually at the conclusion of the feeding period and a 4% pencil shrink will be applied to the final weight to determine live sale weight for calculation of feedyard performance.

13. The cattle will be sold on a carcass basis with premiums and discounts for quality grades, yield grades and carcass weights. Fair market value for all sales will be attained, but neither the feedyard nor Arkansas Steer Feedout Program management guarantees the profitability of participation in the program. Proceeds will be mailed to the consignor after the expenses listed in item 10 are deducted. Disbursement of funds will be approximately four to six weeks after each pen is closed out.
14. Feedyard performance information to be collected: average daily gain, total cost of gain, break-even, feed conversion and net return.
15. Carcass information to be collected: dressing percentage, carcass weight, ribeye area, fat thickness, USDA yield grade and USDA quality grade.
16. Producers will be sent a report after arrival at the feedyard with information on arrival weight and pen assignment.
17. At the conclusion of the feeding period, feedyard performance data and carcass information will be provided on each consignment. The information will be kept confidential for consignors to use in evaluating the cattle they are producing.

For more information contact your local county Extension agent.

UofA UNIVERSITY OF ARKANSAS
DIVISION OF AGRICULTURE

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Steer Feedout Nomination Form
2005 - 2006

Ranch/Farm _____

Contact Person _____

Address _____

City, State, Zip _____

County _____

Phone No.: Day _____ **Night** _____

No. Head Entered _____ x $25 Per Head = _____

☐ Yes, I would like assistance to ship my calves to the feedyard.

NOMINATION FORM DUE OCTOBER 3, 2005
Make Check Payable to: **Agricultural Development Council**

DELIVERY DATE:
Wheeler Bros. Feedyard, Watonga, OK
November 10, 2005 by 5:00 p.m.

MAIL ENTRIES TO:
Brett Barham
Arkansas Steer Feedout Program
PO Box 391
Little Rock, AR 72203

The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Equal Opportunity Employer.