

Kansas Agricultural Experiment Station Research Reports

Volume 0
Issue 1 *Cattleman's Day (1993-2014)*

Article 1232

1980

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Recommended Citation

Schalles, R.R.; Zoellner, K.O.; and Long, K. (1980) "Factors influencing net income from steers through feedlot," *Kansas Agricultural Experiment Station Research Reports*: Vol. 0: Iss. 1. <https://doi.org/10.4148/2378-5977.2635>

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Factors Influencing Net Income from Steers through Feedlot¹

R. R. Schalles, K. O. Zoellner, and Keith Long

Summary

Calves that gained rapidly before going into the feedlot continued to gain rapidly on feed and were more profitable to both the cow-calf operator and the feeder. When fed to their genetic potential, large frame, heavy, young cattle were worth more to the cattle industry than light calves.

Introduction

All performance traits vary genetically among cattle, which provides cattlemen opportunities to produce the most profitable type of cattle. This study was to determine traits that most influence net income.

Experimental Procedure

During five years (1974 through 1978), 444 steers from 22 herds were put on feed at the Solomon Valley Feedlot, Inc., Beloit, Kansas. Most of their calves were crossbred, and most had some Continental European breeding. They were about 9 months old and weighed an average of 592 lb. when put on feed (table 23.1). Most were within 60 days of the same age. Rations were the same as those fed commercial cattle in the feedlot. Individual starting and slaughter weights were obtained. Steers were slaughtered at the Dubuque Packing Plant, Mankato, Ks., when estimated to grade choice. Carcass data were collected.

Pre-feedlot production costs were assumed at \$200 per head in 1974 through 1977 and \$225 per head in 1978. All other costs were actual. Gross income was the actual amount received from the packing plant. Starting value was determined from the USDA Livestock Market News weekly summary of Kansas City prices for each weight calf. That enabled us to evaluate three production systems: 1) Retained ownership from birth through slaughter, 2) purchased feeder calves through slaughter, 3) producer selling feeder calves.

Results and Discussion

On the average, the steers made a profit each year except 1975-76 when they lost \$4.77 per head during the feeding period (table 23.2). If the

¹Data from the Commercial Cattle Improvement Program sponsored by Guarantee State Bank and Trust Co., Beloit, Ks., and Kansas State University Cooperative Extension Service.

calves had been sold as feeders, they would have made a profit each year except 1974-75 when the loss would have been \$33.20 per head.

In all systems, growth was the most important factor influencing net income (highest correlation, table 23.3)(slaughter weight with retained ownership, ADG during feeding with purchased calves, and weight when feeder calves were sold). Because cattle were slaughtered at an average grade of low choice, carcass traits had little influence on net income. Framier cattle (as indicated by shoulder height) were more profitable, probably because of the relationship between shoulder height and other growth traits (table 23.4).

Calves that grew slowly before going on feed continued slow growth in the feedlot. Fast growing, framier cattle had more desirable carcasses with less fat and larger loin eyes. Steers were slaughtered on expected grade, with 77.7% grading low choice or better. Most of the remainder graded high good.

Steers in this study were growthier than average cattle. They were put on feed young (9 months) weighing nearly 600 lb., fed for rapid gains (3.04 lb/day) for a long period (187 days). They were slaughtered young (15 months) and produced very desirable carcasses (705 lb, yield grade 2.9, 77.7% choice). While most cattle were losing money, they produced profits both as feeder calves and in the feedlot.

Table 23.1. Means and standard errors of calves fed.

Trait	Mean \pm Standard error*
Weight on feed (lb)	592 \pm 84
Age on feed (days)	275 \pm 30
Starting weight per day age (lb)	2.17 \pm .29
Shoulder height after 100 days feed (in.)	44 \pm 2
Days fed	187 \pm 19
ADG during feeding (lb)	3.04 \pm .44
Slaughter weight (lb)	1155 \pm 107
Carcass weight (lb)	705 \pm 71
Loin eye area (in ²)	12.5 \pm 1.5
Backfat (in.)	0.41 \pm .15
Yield grade	2.9 \pm .6
Quality grade	Ch ⁻ \pm 1/3 grade
Starting production cost \$	204 \pm 9
Starting market value \$	245 \pm 80
Feed cost \$	206 \pm 24
Other cost \$	21 \pm 2
Net income on feed \$	70 \pm 89

*See the front page for meaning of standard error.

Table 23.2. Average net income per head.

Year	Production system		
	Retained ownership to slaughter	Purchased feeders to slaughter	Sold as feeders
1974-75	\$ 106.75	\$ 158.68	\$ -33.20
1975-76	- 2.21	- 4.77	24.00
1976-77	14.75	3.32	22.07
1977-78	175.93	123.58	41.03
1978-79	281.43	73.18	219.64
Average	\$ 115.33	\$ 70.80	\$ 54.71
Time owned, mo.	15.3	6.2	9.1

Table 23.3. Correlations among performance traits and net income.

Traits	Retained ownership to slaughter	Purchased feeders to slaughter	Sold as feeders
Weight on feed	0.53	0.05	0.98
Age on feed	0.14	-0.08	0.43
Weight/day age on feed	0.42	0.09	0.61
Shoulder height	0.44	0.15	0.58
ADG during feeding	0.51	0.52	----
Slaughter weight	0.67	0.40	----
Slaughter weight/day age	0.51	0.35	----
Days on feed	-0.28	-0.01	----
Loin eye area	0.34	0.20	----
Backfat	-0.08	-0.05	----
Yield grade	-0.07	-0.04	----
Quality grade	0.09	0.15	----

Table 23.4. Correlation among performance traits.

Traits	Weight on feed	Age on feed	Shoulder height	Slaughter weight	Wt/day age on feed	ADG during feed	Wt/day age at slaughter	LEA	BF	YG
Age on feed	0.45	1.00								
Shoulder height	0.63	0.18	1.00							
Slaughter weight	0.71	0.17	0.67	1.00						
Weight/day of age on feed	0.72	-0.34	0.51	0.61	1.00					
ADG during feed	0.26	-0.08	0.43	0.75	0.32	1.00				
Weight/day of age at slaughter	0.52	-0.37	0.54	0.80	0.83	0.78	1.00			
Loin eye area (LEA)	0.38	0.01	0.28	0.51	0.39	0.34	0.44	1.00		
Backfat (BF)	-0.08	0.07	-0.15	-0.22	-0.16	-0.25	-0.26	-0.36	1.00	
Yield grade (YG)	-0.04	0.10	-0.07	-0.15	-0.15	-0.20	-0.22	-0.72	0.77	1.00
Quality grade (QG)	-0.05	0.05	-0.13	-0.10	-0.11	-0.16	-0.16	-0.26	0.31	0.33