North Dakota State University * Dickinson Research Extension Center
1133 State Avenue, Dickinson, ND 58601 Voice: (701) 483-2348 FAX: (701) 483-2005

COMPARISON OF BEEF AND DAIRY STEERS ON SELF FED FINISHING RATIONS

There is a difference of opinion among livestockmen as to how dairy bred steers compare with beef steers in the feedlot. Cattle feeders have reported that under some conditions rate of gain and feed efficiency is less with dairy bred steers than with beef steers fattened under the same conditions. This trial was initiated at the request of cattle feeders and the North Dakota Milk Producers Association to compare beef and dairy bred steers with respect to the management steps required to produce acceptable carcass grades, and, to compare feed requirements and returns realized for both types of steers.

Beef calves weighing 457 pounds and Holstein calves averaging 470 pounds were allotted to the trial, beginning on January 21, 1974. After a warm up period, a self-fed ration of 75% oats, 20% tame hay, 5% alfalfa, di-cal and salt was fed throughout the backgrounding phase. For the finishing phase, grain in the ration was 60% barley and 40% oats.

On November 5, when the beef steers reached an average slaughter weight of 1050 to 1100 pounds they were sold on a grade and yield basis along with a random selection of half the dairy bred steers. The remaining half of the dairy bred steers were continued on feed to determine the feed requirements necessary to get them to high good and low choice grades comparable to the beef steers. These were sold for slaughter on January 28, 1975. Data from the first year's trial are summarized in tables 29 and 30.

Table 29 - Average feed consumption and feed cost/cwt gain for beef bred and dairy bred steers in the feedlot, January 21 - November 5[1]

	Beef steers	Dairy steers
Avg. feed consumption		

Oats lbs.	10.0	9.4
Barley lbs.	3.69	4.36
Tame hay lbs.	4.44	4.35
Alfalfa, lb.	0.96	0.95
Di-cal, lb.	0.01	0.09
Salt, lb.	0.38	0.38
Total/head/day, lbs.	19.6	19.6
Feed/lb. gain, lbs.	9.0	9.4
Feed cost/cwt gain, $	36.66	39.02

[1]Figures represent average feed consumption and should not be considered as fed daily. For example, barely was fed only from May 2 - November 4.

Table 30 - Weights, gains and return for beef bred and dairy bred steers in the feedlot, 1974

	Beef steers	Dairy steers	
Date sold	Nov. 5, 1974	Nov. 5, 1974	Jan. 28, 1975
Initial wt., lbs.	457	470	464
Final wt., lbs.	1104	1071	1160
Gain, lbs.	647	601	696

Days fed	288	288	372
Avg. daily gain, lbs.	2.25	2.09	1.87
Avg. carcass wt. lbs.	659	623	663
Dressing %	59.6	57.3	56.6
Avg. carcass value, $	378.23	347.35	349.18
Initial cost, $			
@ $45.80/cwt		215	213
@ $58.20/cwt	266		
Feed cost/hd, $	222	235	332
Total cost, $	488	450	545
Loss - Carcass value less feed cost and initial cost of calf.	-109.77	-102.65	-195.95
Beef steers graded 6 choice, 4 good; Dairy steers sold Nov. 5 graded 1 choice, 1 good, 3 low good, 2 standard; Dairy steers sold Jan. 28 graded 2 choice, 1 good, 4 low good.			

The trial is being repeated in 1975, with 410 pound beef steers and 407 pound dairy bred steers, beginning on December 3, 1974. These steers, fed the same basic ration as was used the previous year, were sold for slaughter October 28, 1975, except for seven head which will again be continued on feed. Data from the 1975 trial for steers sold on October 28 are shown in table 31.

Summary: When the carcass value is balanced against the feed costs and initial cost of the calf, the appreciably higher initial cost in 1974 resulted in a net loss of over $100.00 for both beef and dairy bred steers, as compared to a net gain of $80.00 to $90.00 for 1975.

Loss of feed efficiency for the steers fed the additional 84 days, to January 28, resulted in a greatly increased feed cost per head, with a correspondingly greater net loss.

Table 31 - Weights, gains and return for beef bred dairy bred steers in the feedlot, 1975		
	Beef steers	Dairy steers
Date sold	Oct. 28, 1975	Oct. 28, 1975
Initial wt., lbs.	410	407
Final wt., lbs.	1076	1118
Gain, lbs.	666	711
Days fed	329	329
Avg. daily gain, lbs	2.02	2.16
Avg. carcass wt., lbs.	629	650
Dressing %	58.7	58.3
Avg. carcass value, $	442.82	430.74
Initial cost - $		
@ $17.60/cwt		71.63
@ $30.00/cwt	118.80	
Feed cost/hd., $	243.62	269.48
Total cost	362.42	341.11
Net $ - Carcass value less feed cost and initial cost of calf	80.40	89.63

Ten beef steers graded 1 prime, 1 high choice, 5 choice and 3 good. Six dairy steers graded 2 choice and 4 low good.

WINTERING REPLACEMENT HEIFER CALVES

Heifer replacement calves can be wintered to gain from 1.25 to 1.50 pounds per head per day without becoming over conditioned according to research conducted at the U.S. Range Livestock Station, Miles City, Montana, South Dakota State University's Antelope Range Field Station, and the Dickinson Experiment Station. Heifer calves fed to gain at this rate will produce good, economical gains and will be cycling early in the breeding season.

Straightbred Hereford heifer calves were wintered a total of 155 days, November 19 to May 7, in this trial under two feeding regimens. Two lots of 12 head each, received a self-fed mixed growing ration and one lot of 8 head was hand-fed. All three lots were provided with pole barn shelters and automatic waterers. The heifers were bedded with straw on a routine basis.

The self-fed balanced rations were prepared through a portable mixer grinder and fed in self feeders of Dickinson Experiment Station design and construction. Weights and gains of the heifers in drylot are shown in table 32; rations as they were fed daily are shown in table 33; and wintering data for the three year period 1973-75 are summarized in table 34.

Table 32 - Weights and gains in drylot under two feeding systems

	Self-fed	Self-fed	Hand-fed
Number head	11	12	8
Days fed	155	155	155
Initial wt., lbs.	454	455	459
Final wt., lbs.	722	710	656
Gain, lbs.	268	255	196

Avg. daily gain, lbs.	1.46	1.64	1.26

Summary: Wintering straightbred Hereford replacement calves to gain 1.25 to 1.50 pounds per head per day with self-fed mixed balanced rations has been very successful. Heifer weight gains have been economical and sufficient to promote estrus cycling early in the breeding season. The self-fed mixed ration (75% tame hay, 25% oats and minerals) has produced good steady gains without evidence of over consumption or bloating problems.

Table 33 - Average feed consumed daily and cost of gain - 1975

Ration ingredients	Feeding Systems		
	Self-fed	Self-fed	Hand-fed
No. head	11	12	8
Oats, lbs.	3.64	3.27	3.77
Tame hay, lbs.	13.70	12.28	7.82
Alfalfa hay, lbs.	.89	.80	2.01
Minerals, lb.	.45	.40	.20
Total consumed, lbs.	18.69	16.75	13.80
Feed cost/hd., $	87.66	78.56	64.57
Feed cost/hd./day, $	.52	.47	.38
Feed cost/cwt gain, $	32.71	30.81	32.94

Table 34 - Feed consumption, gain and cost of wintering heifers, self-fed and hand-fed - 1973-75

	Hand-fed			Self-fed		
	1973	1974	1975	1973	1974	1975
No. head	12	12	8	12	12	23
Days fed	168	181	155	168	181	155
Initial wt., lbs.	410	417	459	408	417	455
Spring wt., lbs.	588	660	656	650	700	716
Winter gain, lbs.	178	243	196	241	284	262
Avg. daily gain, lbs.	1.06	1.34	1.26	1.44	1.57	1.55
Lbs. feed/hd./day	13.1	17.2	13.8	14.8	14.0	17.8
Feed cost/hd./$	33.02	79.47	64.57	34.29	67.46	83.11
Feed cost/hd./day, [illegible]	19.6	43.9	38.4	20.4	37.3	49.5
Feed cost/cwt gain, $	18.50	28.01	32.94	14.20	23.78	31.76

Half of the heifers in this trial were vaccinated by a local veterinarian for brucellosis with strain 19 organisms on November 29 and the remainder were vaccinated on January 1. Brucellosis vaccinations, administered either early or late have had no significant adverse effect on heifer weight gains, after two winterings, as shown in table 35.

Table 35 - Effects of Brucellosis vaccination on winter gain

	Date Vaccinated			
	11-21-73	1-14-74	11-29-74	1-28-75
No. head	16	16	16	15

Avg. wt. Gain/hd				
(Nov. 1 to Dec. 18), lbs.	68	76		
(Nov. 19 to Dec. 26), lbs.			35	36
Avg. wt. Gain/hd.				
(Nov. 1 to Feb. 14), lbs.	136	151[1]		
(Nov. 19 to Feb. 24), lbs.			127	121
Total wt. Gain/hd.				
(Nov. 1 to May 1), lbs.	221	283		
(Nov. 19 to May 7), lbs.			247	239
[1]Significant at 5% level.				

On May 7 all heifers were removed from drylot and turned out on crested wheatgrass pasture until June 3, when they were moved to native grass pasture. Fertile bulls were turned out with the heifers on May 7 and were removed on July 8. On October 7 all heifers were weighed and removed from summer pasture. Their pasture gains are summarized in table 36.

Table 36 - Performance on grass, May 7 to October 1

	Self-fed	Self-fed	Hand-fed
No. head	11	12	8
Days on grass	135	135	135
Initial wt., lbs.	722	710	656

Final wt., lbs.	853	850	842
Gain on pasture, lbs.	131	140	186
Avg. daily gain, lbs.	0.97	1.04	1.34

Animals making slower gains in the feedlot made more rapid gains on pasture, and final weights at the end of the pasture season were nearly equal for both feeding systems.

Back to 1975 Research Reports Table of Contents
Back to Research Reports
Back to Dickinson Research Extension Center (http://www.ag.ndsu.nodak.edu/dickinso/)
Email: drec@ndsuext.nodak.edu
