

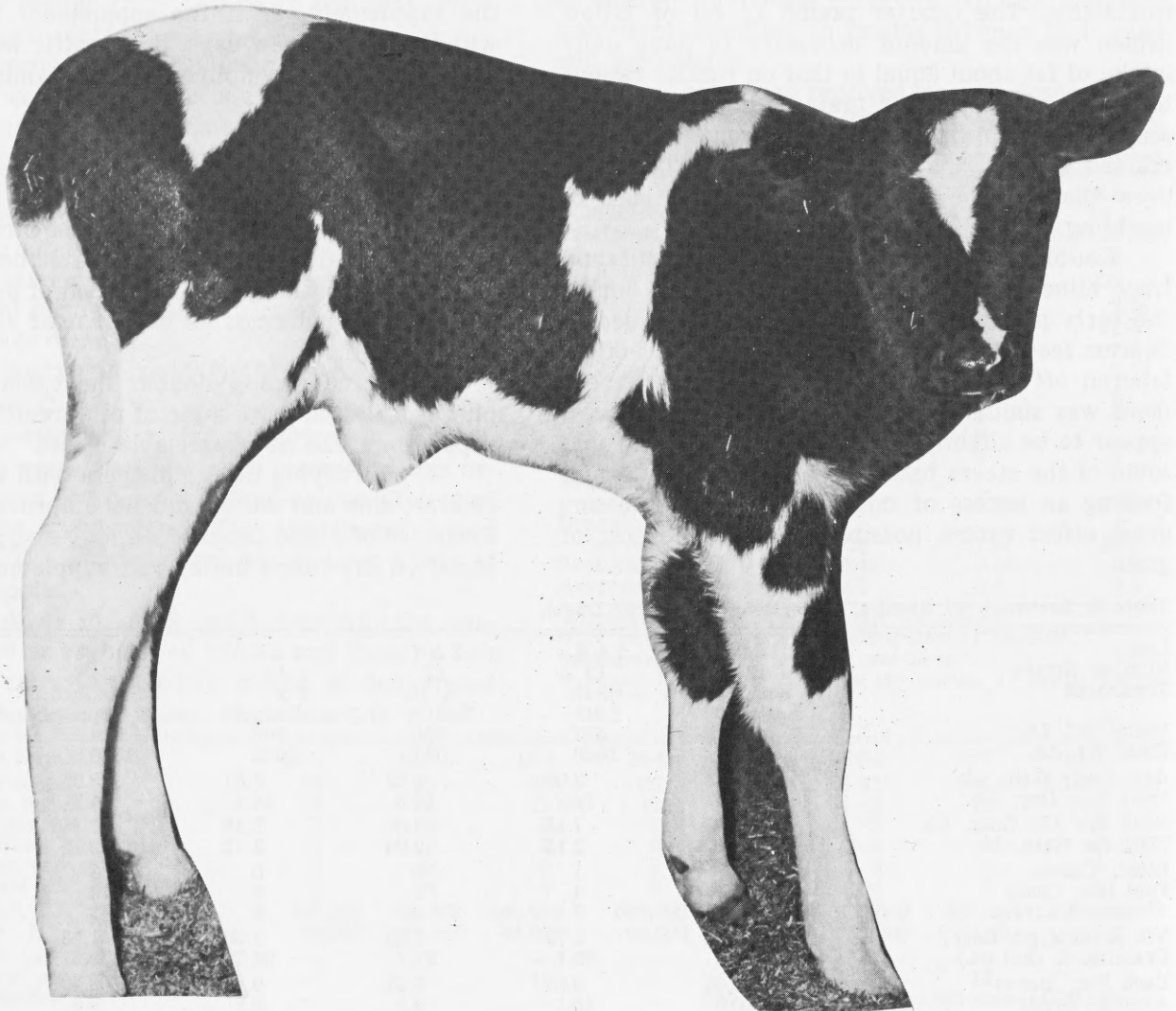
Dairy Beef

A Profit Potential

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Cows kept primarily for milk purposes give birth to approximately 8,000,000 male calves each

year in the United States. Only a small percentage of these are selected as breeding animals and the number required for this purpose has decreased markedly with the wide use of artificial insemination.



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In many areas the profit from selling these calves at a few days of age or selling as veal is very small. However, there is evidence that raising dairy beef does offer a profit potential under many circumstances. Many factors which may affect the quality of carcasses produced and the efficiency of gain have not been thoroughly investigated.

Early work at Ohio and Wisconsin showed that dairy steers made relatively rapid gains in the feed lot and were profitable under certain conditions (Bohnstedt, 1929; Fuller, 1927, 1929, 1930). Rumery and Baker (1953) reported data on feed consumption of Holstein steers from birth to approximately 1,000 pounds, using various diets. McCormick and Kedwell (1953) indicated that raising dairy beef can be profitable. They based their conclusions on data from 62 Holstein steers raised with high roughage rations under Nevada conditions.

Some carcass evaluation of dairy beef and comparisons of various dairy breeds have been reported (Rumery and Adams, 1956; Hibbs, et al., 1959). While the carcasses from dairy breeds did not grade as high as those from beef breeds, they did yield a relatively high percentage of lean meat. In these trials, carcasses from Brown Swiss steers slightly excelled those from Holstein. Jerseys which were included in the Ohio work (Hibbs, et al., 1959), returned much less profit and had lower grading carcasses than either Brown Swiss or Holstein.

To evaluate dairy animal carcasses in terms of USDA dual grading standards for carcass beef and to determine the cost of producing carcass beef from dairy stock, 47 steers (29 Holstein and 18 Brown Swiss) were slaughtered and evaluated for carcass characteristics by the Department of Animal Science. Feed consumption records and rate of gain for the steers during two phases were calculated. In the first phase, the calves were fed from birth to 300 pounds on a ration consisting of milk replacer, grain and supplement in limited amounts, with hay and water available free choice. The second phase was from 300 pounds liveweight to a carcass weight of about 600 pounds (approximately 1,050 pounds liveweight). In this phase the steers were fed a ration consisting of 2 pounds rolled oats, 2 pounds pelleted alfalfa hay, 1 pound protein-vitamin-mineral supplement to appetite and barley each day.

The steers were not fed stilbestrol. The cattle were held off feed but were on water approximately 14 hours prior to recording shrunk

liveweight for slaughter. The steers were slaughtered at a local slaughter plant and the USDA quality grade was determined by a qualified grader of the USDA Marketing Service. In addition to the composite grade, those factors that determine quality grade-conformation, maturity, and marbling were recorded. All measurements necessary to calculate cutability scores based on both the USDA and the Rump and Round formulas were recorded.

The cost of raising the calf from birth to 300 pounds live-weight is presented in Table 1, along with other information recorded during the period.

The 47 steers had an average live slaughter weight of 1,079 pounds, and reached this weight at 447 days of age, or approximately 14.7 months, equivalent to 2.41 pounds per day of age (Table 2). The steers had an average carcass weight of 613.4

Table 1. Phase I of Dairy Beef Project.

	Holstein	Brown Swiss
Number of calves	29	18
Average birth weight	98.5	109.2
Average weight at end of Phase I	314.5	312.4
Average number of days	113.2	109.7
Average gain per calf	216.0	201.9
Average lb. gained per day	1.909	1.841
Feed Consumption per calf:		
lbs. whole milk	82.2	73.3
lbs. milk replacer	84.3	84.9
lbs. grain	391.6	377.5
lbs. hay	323.3	297.2
With an average feed cost of 4.45c/lb. for milk, replacer at 19c/lb., grain at 2.75c/lb., and hay at 1.2c/lb., the average feed cost to raise the calves to approximately 300 lbs. is:		
	\$34.33	\$33.34
Average feed cost per lb. of gain:	15.89c	16.51c

Table 2. Slaughter Data for Dairy Steers.

	All Steers	Holsteins	Brown Swiss
Live wt., lb.	1079	1078	1082
Hot carcass wt., lbs.	613.4	614	613
U.S.D.A. grade	Good ^o	Good ^o	Good ^o
Loin eye area, sq. in	10.89	10.46	11.58
Backfat, in.	.153	.154	.15
Conformation grade	Good-	Good-	Good ^o
Marbling score	Small-	Small-	Slight+
Physiological age	A	A	A
Kidney weight, lbs.	19.10	19.96	17.72
Rump and round wt., lbs. (based on 1/2 carcass)	68.71	67.50	70.67
Dressing per cent	56.85	57.00	56.60
Age in days	447	445	449
Carcass wt./day of age, lbs.	1.37	1.38	1.36
Live wt./day of age, lbs.	2.414	2.42	2.41
U.S.D.A. cutability score	51.37	50.94	52.07
R & R cutability score	53.39	52.64	54.60
Loin eye area/100 lbs. carcass, sq. in.	1.78	1.70	1.89
Backfat/100 lbs. carcass, in.	.025	.025	.024
% Kidney-based on liveweight	1.77	1.85	1.64
% Kidney-based on carcass weight	3.11	3.25	2.89

pounds, yielded a dressing percentage of 56.85 per cent and had 1.37 pounds of carcass weight per day of age. Loin eye area per hundred pounds of carcass weight was 1.78, the Brown Swiss being slightly more desirable in this respect.

The steers were quite high in cutability scores based on both the USDA and Rump and Round formulas for estimating cutability. However, the Brown Swiss were slightly higher for both of these, obviously due to their larger loin eye area and Rump and Round weight. They were also slightly more desirable in kidney knob weight, equal to 2.89 per cent of their carcass weight, while the Holstein kidney knob weight was 3.25 per cent. The backfat measurements were low in all cases. The steers had an average backfat of 0.025 inches per hundred pounds of carcass weight. Marbling scores ranged from practically devoid to moderate, the average being small. The number of steers with each degree of marbling are presented by breed in Table 3. The average carcass grade for all steers was Good°. The number of steers in each grade for each breed are presented in Table 4.

The average daily gain for all steers in the second phase of the feeding period was 2.33 pounds per day. The Holsteins were slightly higher in this respect and were also slightly more efficient.

Table 3. Number of Steers by Breed with Various Degrees of Marbling.

	Practically Devoid	Traces	Slight	Small	Modest	Moderate
Number of:						
Brown Swiss	1	5	6	4	1	1
Holstein	0	2	9	11	2	5
Total Steers	1	7	15	15	3	6

Table 4. Number of Steers in Various Slaughter Grade Classes.

	Standard°	Standard+	Good-	Good°	Good+
Number of:					
Brown Swiss	1	0	3	9	5
Holstein	1	0	8	7	13
Total Steers	2	0	11	16	18

However, feed cost per pound of gain was very similar for both breeds. The average feed, feed costs and TDN per pound of gain are presented in Table 5. These figures are based upon the information obtained in the second phase of the feeding period.

Production of dairy beef offers a profit potential to producers of male dairy calves. If we assume a realistic selling price of \$39 per hundred weight of carcass for steer carcasses with a USDA good grade weighing in the 500 to 700 pound carcass weight range, these steers would return a gross income, under this system of management, of \$239.23 per steer based on their carcass weight of 613.4 pounds. The total feed cost per animal was \$145.12 (\$33.90 + \$111.22)¹ for both phases of feeding. Therefore, using the figures obtained, if the producer of the dairy calf would finish the animal to slaughter weight, he would have approximately \$94.11 (239.23 - 145.12) per animal to cover all expenses other than feed. This should still result in a substantial profit to the producer after all expenses are deducted.

Table 5. Feedlot Data for Phase II of Dairy Beef Project.

	All Steers	Holsteins	Brown Swiss
Initial weight, lbs.	312	314	312
Final liveweight, lbs.	1079	1078	1082
Total gain/steer, lbs.	767	764	770
Days on feed	329	323	335
Average daily gain, lbs.	2.33	2.37	2.30
Feed/lb. gain, lb.	7.031	6.97	7.11
Feed cost/lb. gain ¹	.145c	.145c	.146c
TDN/lb. gain, lb.	4.87	4.84	4.91

¹Feed cost based upon a price of .02c for oats, .02c for barley, .045c for supplement, and .0125c for hay.

¹\$33.90 is the average feed cost per calf from birth to 312 pounds. \$111.22 is the average feed cost per steer from 312 pounds to slaughter.

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