

AGRICULTURAL EXTENSION SERVICE
UNIVERSITY OF CALIFORNIA

BEEF CATTLE - Cow and Calf Operation

by

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The Breeding Herd - A cow-calf operation consists of a herd of brood cows, bulls and replacements for the cow herd, all of which must be maintained the year round. The product of this herd is a marketable calf of eight to nine months of age and weighing 400 to 500 pounds at weaning, usually in July or August. Under some conditions a calf might be sold for veal when it weighs 200 to 250 pounds.

A cattleman should be able to maintain a herd of around 200 cows by himself and trading labor with neighbors. To back up these 200 cows, he should have 8 to 10 bulls (one for each 20 to 25 cows) and around 40 replacement heifers, (20 percent of his cow herd).

Land and Facilities - The breeding cow operation is a long time business and requires a large investment in land, cattle and facilities. In the coastal area, with its variety of climates and soils, the acres needed to carry a mature cow for the year varies from a low of 6 acres to a high of 60 acres. To generalize further, we can say that in the open grazing land closer to the coast, a cow (or animal unit) would need 10 to 12 acres, while the interior and higher range land needs 20, 30 or more acres to support the cow. At present, the land investment would be in excess of two thousand dollars per animal unit. Thus it is evident that many livestock ranches in this area are capitalized to such a degree that profitable beef operations are rather impossible and indicates that other factors of land value are involved.

The leasing of grazing land is practiced widely in the area; however, this is done more for stocker operations than for the cow herd. Depending upon the range capabilities and location, leases will vary from \$2 to \$8 per acre. This usually figures out to be \$60 to \$100 per animal unit.

Facilities and equipment for this cattle operation are limited and the investment is small in relation to land costs. In a leasing situation, many times most facilities are included in the lease; otherwise fencing and corrals are the major item. Other equipment includes trucks for hauling livestock (including horses), a cattle chute and squeeze for working cattle, and a pickup truck for the owner's transportation. A scale is of growing importance to select replacement breeding cattle and for use in weighing cattle for market.

Operational Efficiency - Since the major source of income for this operation is the marketable calf, it follows that profit is directly related to the calf crop. Two of the most important factors affecting the calf crop are the weaning weight (often this is the selling weight) and the calving percentage (realistically defined as the proportion of cows bred which wean a calf). The following table shows the variation in the break-even point (the diagonal line) with calves selling at 26 cents and 27 cents per pound which uses percentage calf crop and calf weights as the variables. In this situation operating costs were \$90 per cow. The top figure is the pounds of calf produced per cow and the lower figure gives the cost of producing the pound of calf to weaning weight.

% CALF CROP	CALF WEIGHTS (pounds)							
	500	475	450	425	400	375	350	325
90%	$\frac{450}{20.0}$	$\frac{428}{21.0}$	$\frac{405}{22.2}$	$\frac{382}{23.6}$	$\frac{360}{25.0}$	$\frac{337}{26.7}$	$\frac{315}{28.6}$	$\frac{292}{30.8}$
80%	$\frac{400}{22.5}$	$\frac{380}{23.7}$	$\frac{360}{25.0}$	$\frac{340}{26.5}$	$\frac{320}{28.1}$	$\frac{300}{30.0}$	$\frac{280}{32.1}$	$\frac{260}{34.6}$
70%	$\frac{350}{25.7}$	$\frac{332}{27.1}$	$\frac{315}{28.6}$	$\frac{297}{30.3}$	$\frac{380}{32.1}$	$\frac{262}{34.4}$	$\frac{245}{36.7}$	$\frac{227}{39.6}$
60%	$\frac{300}{30.0}$	$\frac{285}{31.6}$	$\frac{270}{33.3}$	$\frac{255}{35.3}$	$\frac{240}{37.5}$	$\frac{255}{40.0}$	$\frac{210}{42.9}$	$\frac{195}{46.2}$

Losses in calf crop may be due to several factors. However, recent research shows that the largest losses occur because cows do not become pregnant and calves die at or near birth.

Breeding Program - The general practice in this area is to manage the breeding herd to calve in the fall (October, November and December). This means planning the breeding season and putting the bulls with the cows on January 1st. With first calf heifers, the bull should go in by December 1st. The bulls should run with the cows four months or less. This is sufficient time and results in more uniform calf crops. Under average range conditions one bull of desirable size and quality should be run to every 25 cows; under rough conditions one to 15 or 20 cows; and under pasture conditions, one to 40 or 50 cows.

Crossbreeding - Currently there is much interest in crossing the "British" breeds of cattle (hereford, Angus or Shorthorn) with each other or with other breeds such as Holstein, Brahman or Charolais. Such crosses produce cows that live longer, produce more milk, have a higher conception rate, and produce a larger calf crop than do straightbred cattle. A crossbred mother may outproduce the straightbred female by 10 to 15 percent. It is necessary, however, to conduct crossbreeding in a systematic way and to use high gaining purebred cattle for repeated production of desirable crossbred range cows and calves.

Performance Records - Records of performance of range bulls and replacement heifers provide a sound objective approach to commercial herd improvement. These records add to a breeder's reputation, and the animals pedigree in assisting a buyer to select top bulls. Several record systems are being used in the State (i.e. California Beef Cattle Improvement Association and the various breed improvement programs). Modified programs are adapted to selecting commercial replacement heifers.

Feeding Program - Nutrient requirements for beef cattle are clearly defined.

The brood cow has her highest requirements at the end of gestation (pregnancy) and when providing milk for her calf. In fact, her requirements almost doubles. This critical period hits when our annual range forage is at its lowest point.

The amount of feed will vary with each operation and management. Many ranchers supplement range land with sudan or barley pasture to defray feeding costs. However, under most situations and in all but the best "feed years", some form of supplemental feeding is necessary. This supplemental period usually runs from late August until an abundance of green feed is available, around the first of the year.

Supplemental feeding can be done in at least three ways:

- 1) High Quality Alfalfa hay - (3 to 4 pounds per head per day)
- 2) Cottonseed-barley-salt mix - (1 to 3 pounds per head per day)
- 3) Liquid molasses-urea mix - (2 to 3 pounds per head per day)

Another common practice is to supplement Vitamin A in the late summer either by feeding it in the above mixes or by injecting it into the cows.

Other Factors - In most cases labor is either carried on by the family or traded with neighbors in smaller operations.

Sanitation and disease control, through the use of vaccines, and antibiotics for preventing diseases, and parasite control (both internal and external), are important and will help insure that top calving percentage. Grazing management in the form of proper salting, water spacing, and alternating grazing areas allow maximum utilization of range forage.

Artificial insemination is gaining in popularity with beef cattlemen. This requires major changes in the ranch operations, but allows the use of high quality bulls, backed by performance data. This results in uniform and good gaining calves.

SAMPLE COSTS . . . BEEF CATTLE COW-CALF OPERATION SELLING WEANERS
San Luis Obispo and Santa Barbara Counties - 1967

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	Total	Per Cow	Your Cost
INITIAL INVESTMENT			
Stock - 250 cows @\$200	50,000	200.00	
10 bulls @ \$500	5,000	20.00	
50 replacement heifers @ \$180	9,000	36.00	
3 horses @ \$400	1,200	4.80	
Equipment - pickup, trailer, 1 1/2 ton truck, chute, Misc. equipment and tools	8,000	32.00	
Total Investment	<u>\$73,200</u>	<u>\$292.80</u>	
DEPRECIATION			
Horses and saddles	160	.64	
Equipment - \$8,000, 10-year life	800	3.20	
Total Depaeciation	<u>\$ 960</u>	<u>\$ 3.84</u>	
INTEREST ON INVESTMENT @ 7% (Equipment @ one-half original cost)			
	\$ 4,844	\$ 19.37	
INCOME			
	<u>Total lbs.</u>	<u>Price/Cwt</u>	
97 weaner steers @ 480#	\$ 46,560	\$27	12,571 50.28
50 weaner heifers @ 450#	22,500	24	5,400 21.60
15 vealers @ 250#	3,750	30	1,125 4.50
45 cull cows @ 1,000#	45,000	18	8,100 32.40
9 cull heifers @ 800#	7,200	20	1,440 5.76
2 cull bulls @ 1,500#	3,000	22	660 2.64
Total Gross Income			<u>\$29,296</u> <u>\$117.18</u>
EXPENSES			
Bull replacements - 2 @ \$500	1,000	4.00	
Range - 3,000 acres @ \$5	15,000	60.00	
Barley stubble - 60 days @ 120 head	500	2.00	
Sudan pasture - 60 days @ 130 headd	780	3.12	
Liquid range supplement - 2#/day - 120 days @ \$60/ton	1,800	7.20	
Salt and minerals	85	.34	
County taxes - stock	1,338	5.47	
- equipment	80	.36	
Gas, oil, repairs and maintenance	1,500	6.00	
Veterinarian and medicine	625	2.50	
Administration (accounting, licenses, dues, ins. etc)	800	3.60	
TOTAL CASH COSTS	<u>\$23,508</u>	<u>\$ 94.59</u>	

SUMMARY	Total	Per Cow
Gross Income	<u>Total</u> \$29,296	<u>Per Cow</u> \$117.18
Less Cash Costs	23,508	94.59
Net Cash Income	<u>\$ 5,788</u>	<u>\$ 22.59</u>
Less Depreciation	960	3.84
Farm Income	<u>\$ 4,828</u>	<u>\$ 18.75</u>
Less Operator's Labor	4,000	16.00
Residue Income	<u>\$ 828</u>	<u>\$ 2.75</u>
Less Interest on Investment	4,844	19.37
MANAGEMENT INCOME (LOSS)	<u>(\$ 4,016)</u>	<u>(\$ 16.62)</u>

Based on: 250 herd; leased land w/carring capacity of 12 acres per animal unit;
 3,000 total acreea; 85% calf crop at weaning; 20% replacement;
 2.5% mortality; calving in November and December and sold in July.