Beef Cow-Calf Enterprise

Department of Agricultural Economics — *www.agmanager.info*

K-STATE Research and Extension

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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The beef cow-calf enterprise plays an important role in the livestock economy of the state. Cows perform well on poor quality forages, such as corn or sorghum stalks and other crop residues, when properly supplemented after calving. Commercial cows are especially adapted to areas where there is an abundance of native grass, along with crop residues and winter forages.

This budget uses 2014 projected input and output prices for illustrative purposes (see MF1013 for details of projected prices). The budget is based on a typical spring calving cow herd with natural breeding (i.e., bull as opposed to AI). Individual producers should use their own prices and costs, and adjust production factors to match their individual situations. For example, a typical fall calving herd would be expected to have higher feed costs, but also a higher gross return than that depicted in this example.

Feed

A beef cow-calf enterprise relies heavily upon forages, grazing and mechanically harvested feed. The amount of forages required depends on a number of factors (cow size, forage quality, grain and supplement fed, etc.). The feed level used in this budget includes feed for the cows, bulls, replacement stock, and calves to weaning (Table 1). Crop residue and winter wheat can be used in the fall to provide part of the feed requirements.

In many areas of Kansas, year-round native pasture can be used with some supplemental protein or alfalfa hay in the winter. In eastern Kansas, brome and fescue can be used for extended grazing. However, good management dictates that 1 to 1½ tons of harvested forage be available during the winter months.

Labor

Labor requirements for a beef cow-calf enterprise vary considerably depending on the size of the herd and how they are handled (Table 2). Labor required to produce feed or pasture for the livestock is not included in the annual labor requirement to manage the cow-calf enterprise.

Capital

Land required to produce a year-round feed supply varies from 3 to 5 acres in eastern Kansas, between 7 and 10 acres in the Flint Hills, and 10 to 15 acres in western Kansas. Land costs are accounted for by pasture rent and the price of feed charged to the livestock.

Capital requirements for livestock equipment and facilities can vary greatly. The budget assumes hay is used for winter feed. The required facilities include livestock buildings, feed storage, corrals, and working facilities. Required equipment includes feed handling and feeding equipment, watering equipment, manure handling equipment, and transportation equipment. Table 3 presents capital investment per cow assumptions. Depreciation and capital investment figures used in this guide are based on Kansas Farm Management Association data.

Production Levels and Costs

Costs per unit and net returns in livestock production are highly dependent on production levels. The following estimated budget includes three production levels. Production levels vary for a number of reasons including livestock quality or genetics, weather, input levels, and management. The three production levels included in this estimated budget reflect production variability due to weather and management as opposed to the quality of the livestock, since livestock values are held constant. Budgeting at multiple production levels can help producers examine the financial risk that is directly related to production risk of a livestock enterprise. The production levels in the cow-calf budget are assumed to vary due to differences in weaned calf percentages. Varying the weaned calf percentage affects the number of calves available for sale (Table 5). This budget assumes steer calves are sold at 560 pounds and heifer calves at 540 pounds.

Information Included in Budget

1. **Steer sales:** see Table 5.
2. **Heifer sales:** see Table 5.
3. **Cull cow sales:** based on 16 percent culling rate (cull cow sales plus insurance payments).
4. **Other:** includes any additional revenue associated with the cow-calf enterprise (government disaster payments, for example).
5. **Pasture:** charged at average rental rates per AUM for cows and calves, bulls, and replacement heifers (Table 1). Rental rates are a proxy for the total production cost of pasture including a land charge (see Table 1).
6. **Crop residue:** see Table 1.
7. **Hay–forage:** see Table 1.
8. **Grain:** see Table 1.
9. **Protein–minerals:** see Table 1.
10. **Labor:** estimated to be 5.9 hours per cow (see Table 2).
11. **Veterinary, drugs, supplies:** costs for treatment and disease prevention.
12. **Marketing costs:** include only if these costs have not been deducted from gross returns per cow (line A).
13. **Utilities, fuel, and oil:** gasoline, diesel, and oil used when observing cattle, hauling feed, scraping and hauling manure, and hauling livestock. Utilities are the beef cow enterprise's share of the farm telephone, electricity, gas, and water expenses.
14. **Facilities and equipment repairs:** share of expenses for repairs on livestock machinery and equipment, fences, corrals, and feed bunks.
15. **Breeding charge:** capital replacement (includes 16 percent of sale value of a heifer), annual bull cost (depreciation, lease, and artificial insemination charges), interest on breeding stock, and insurance on breeding stock.
16. **Professional fees:** includes legal fees, accounting and farm management fees, consultant fees, etc.
17. **Miscellaneous:** includes small tools, ear tags, etc., plus livestock's share of farm organization fees, magazines, and office supplies.
18. **Depreciation on facilities and equipment:** based on average investment per cow of $50.00 in facilities and feed storage with a remaining life of 10 years; and equipment investment of $275.00 per cow with a remaining life of 8 years. It is assumed there is no salvage value on facilities and equipment at the end of the remaining life.
19. **Interest on facilities and equipment:** interest is calculated based on the average investment times an interest rate of 6.5 percent.
20. **Insurance and taxes on facilities and equipment:** averages approximately 0.25 percent and 1.5 percent of average investment, respectively.
21. **Interest on operating costs:** calculated on one–half of variable costs at the current interest rate of 6.5 percent.
22. **Hundredweight weaned:** {[(weaning percentage ÷ 2) × steer weight] + [(weaning percentage ÷ 2) × heifer weight]} ÷ 100.

COST-RETURN PROJECTION—BEEF COW-CALF ENTERPRISE (PER COW EXPOSED)

	Weaning Percentage			
	82%	88%	94%	Your Farm
RETURNS PER COW:				
1. Steers: 560 lbs @ $179.40/cwt	$ 411.90	$ 442.04	$ 472.18	
2. Heifers: 540 lbs @ $166.90/cwt	369.52	396.55	423.59	
3. Cull Cows: 1,240 lbs @ $81.24/cwt × 16%	161.18	161.18	161.18	
4. Other				
A. GROSS RETURNS PER COW	$ 942.60	$ 999.78	$1,056.95	
COSTS PER COW:				
5. Summer Pasture (see Table 1)	$ 186.03	$ 186.03	$ 186.03	
6. Crop Residue (see Table 1)	20.10	20.10	20.10	
7. Hay — Forage (see Table 1)	291.60	291.60	291.60	
8. Grain (see Table 1)	8.87	8.87	8.87	
9. Protein and Mineral (see Table 1)	43.73	43.73	43.73	
10. Labor	88.50	88.50	88.50	
11. Veterinary, Drugs, and Supplies	20.00	20.00	20.00	
12. Marketing Costs	12.50	12.50	12.50	
13. Utilities, Fuel, and Oil	44.16	44.16	44.16	
14. Facilities and Equipment Repairs	35.00	35.00	35.00	
15. Breeding Charge				
a. Capital Replacement (16% of Heifer Calves)	144.20	144.20	144.20	
b. Annual Bull Cost or A.I. Charge	13.64	13.64	13.64	
c. Interest on Breeding Stock	119.81	119.81	119.81	
d. Insurance on Breeding Stock	13.82	13.82	13.82	
16. Professional Fees (legal, accounting, etc.)	5.00	5.00	5.00	
17. Miscellaneous	15.00	15.00	15.00	
18. Depreciation on Facilities and Equipment	41.45	41.45	41.45	
19. Interest on Facilities and Equipment	22.23	22.23	22.23	
20. Insurance and Taxes on Facilities and Equipment	1.64	1.64	1.64	
B. SUBTOTAL	$ 1,127.27	$ 1,127.27	$1,127.27	
21. Interest on ½ Operating Costs @ 6.5%	25.58	25.58	25.58	
C. TOTAL COSTS PER COW	$ 1,152.85	$ 1,152.85	$1,152.85	
D. RETURN OVER TOTAL COSTS (A – C)	$ -210.25	$ -153.07	$ -95.90	
22. Cwt. Weaned	4.51	4.84	5.17	
E. AVERAGE GROSS RETURN NEEDED/CWT.				
23. To Cover Total Costs	$ 219.88	$ 204.89	$ 191.81	
24. To Cover Feed Costs	$ 122.02	$ 113.70	$ 106.45	
F. ASSET TURNOVER (A ÷ INVESTMENT)[1]	43.14%	45.75%	48.37%	
G. NET RETURN ON INVESTMENT ((D + 15c + 19 + 21) ÷ INVESTMENT)[1]	-1.95%	0.67%	3.28%	

[1] *Investment equals total value of breeding stock and facilities–equipment.*

Table 1. Feed Requirements Per Cow Unit

Pasture		**AUM**	**Percent**	**Total AUM**	**$/AUM**	**Total**
Cow and Calf		8.51	100%	8.51	$19.31	$164.35
Replacement Heifer		4.66	16%	0.75	$19.31	$14.41
Bull		9.41	4%	0.38	$19.31	$7.27
Total Pasture Per Cow Unit				9.63		$186.03
Harvested Forage	**Lbs/day**	**Days**	**Percent**	**Total lbs**	**$/ton***	**Total**
Cow (Dry)	33.0	60	100%	1,980	$116.24	$115.08
Cow (Lact.)	37.0	60	100%	2,220	$116.24	$129.03
Replacement Heifer	15.5	198	16%	491	$148.00	$36.34
Bull	40.0	120	4%	192	$116.24	$11.16
Total Equivalent Cow Unit				4,883		$291.60
Crop Residue	**Lbs/day**	**Days**	**Percent**	**Total lbs**	**$/ton**	**Total**
Cow	25.0	60	100%	1,500	$25.34	$19.01
Bull	36.0	60	4%	86	$25.34	$1.09
Total Equivalent Cow Unit				1,586		$20.10
Grain	**Lbs/day**	**Days**	**Percent**	**Total lbs**	**$/cwt**	**Total**
Cow	0.0	0	100%	0.0	$9.20	$0.00
Replacement Heifer	3.0	198	16%	95.0	$9.33	$8.87
Bull	0.0	0	4%	0	$9.20	$0.00
Total Equivalent Cow Unit				95		$8.87
Protein Supplement	**Lbs/day**	**Days**	**Percent**	**Total lbs**	**$/ton**	**Total**
Cow	1.5	60	100%	90.0	$466	$20.97
Replacement Heifer	0.2	198	16%	6.3	$466	$1.48
Bull	1.0	30	4%	1	$466	$0.28
Total Equivalent Cow Unit				98		$22.73
Salt and Mineral Mix	**Lbs/day**	**Days**	**Percent**	**Total lbs**	**$/ton**	**Total**
Cow Unit	0.16	365	100%	60	$700	$21.00
*Based on 50% prairie hay and 50% cane hay				Total feed costs per cow unit		$549.23

Table 2. *Annual Labor Requirements (MF802)*

Cow Numbers	**Hours Per Cow**
Less than 100	6.9
100-200	5.9
Over 200	4.4

Table 3. *Capital Investment (Except Land) per Cow Unit*

Facilities and Improvements	$7,800
Cowherd Share of Equipment	$43,500
Total Investment	$51,300
Investment Per Cow	$342.00

Table 5. *Calf Sales Per Beef Cow*

	Weaning weight, lbs	**Price/cwt**	**Weaning percentage**		
Steer calves	560	$179.40	41%	44%	47%
Heifer calves	540	$166.90	41%	44%	47%
Average	550	$173.15	82%	88%	94%

Table 4. *2012 Total Costs Per Beef Cow (Sell Calves < 625 lbs) -- Average of 93 Farms, KFMA*[1]

Item	**Per Cow**
Feed Purchased	$304.61
Pasture	143.90
Hired Labor	21.62
Vet Medicine/Drugs	23.11
Gas, Fuel, Oil	34.12
Utilities	13.39
Marketing and Breeding	20.29
Repairs, Auto and Truck Expense	50.12
Machine Hire	9.15
Cash Building Rent and Conservation	2.94
Farm Organization Fees / Travel / Publications	6.27
Interest Paid	24.24
Personal Property Tax	2.60
General Farm Insurance	10.80
Real Estate Tax	5.66
Depreciation	52.51
Operator's Capital	97.89
Operator's Labor	126.91
TOTAL	$950.13

[1]*Average number of cows was 116, with an average weight of calves sold of 581 pounds.*

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