

600 Head Cow Herd – Central Nebraska Representative Budget

Background

In Central Nebraska, a group of producers located primarily in Blaine and northern Custer County provided information on a representative 600 cow herd, a herd size typical for their area. The cattle industry in Custer County and the surrounding area is significant to the economy. Cattle producers with this size herd primarily focus on cattle and hay as their main enterprises. Hay utilized for the cow-calf operation is typically all raised. Some producers also raise crops and noted that off-farm income to supplement their family living is important.

Livestock Management Practices

Typical calving time for cow herds in this area is February through March with heifers calving in the March timeframe primarily. It was noted that 12% of cows are culled per year with replacement heifers being raised from the herd. A typical open rate on the cows is 8%.

Weaning rates per exposed cow typically run 93% with weaning weights averaging 500 pounds. There is generally a 50-to-75-pound difference in male versus female weaning weights with the females being lighter in weight. Backgrounding calves is normal for 60 to 90 days after weaning with calves sold around the first of January (depending on income tax planning for the year). A marketing expense adjustment is added to the backgrounding calves' budget to account for any expense difference from that of the weaned calves.

Chart 1: Flowchart provides production numbers for typical 600 head cow-calf operation in central Nebraska.

Pasture and Feed

In this area of the state, approximately 50% of pasture utilized is on owned ground and 50% of pasture utilized is rented. Current pasture rental rates in the area are running near \$60 per acre with an eight to ten acre per pair stocking rate. Cows are on pasture for 5 months, on corn stalks from

November to February (80% is rented stalk ground) at typically \$15 to \$20 /month, with 20% owned crop residue ground.

During March and April, hay is fed to the cow herd. Yearling heifers are fed in the dry lot from November to April (6 months). In May, heifers are typically artificially inseminated, then go on pasture from June through October. Bred heifers are generally separated from the bred cows to their own pasture and supplemented with hay. Bulls are out on pasture from June thru October and then fed in the dry lot 4 to 6 months.

Feed and hay costs produced on owned ground, along with pasture and stalk rent expenses are considered as separate enterprises from the cow calf enterprise. Therefore, in this representative budget, feed, hay, and stalks are included as cash feed expenses valued at current market rate. Individual producers using the budget template can indicate an opportunity cost and real estate taxes for their land use in lieu of cash rental or purchase expenses. In addition, other annual maintenance costs of pasture or owned ground should be considered as well.

Machinery, Equipment and Facilities

Basic equipment utilized for the representative cow-calf operation includes two tractors, one with a loader, a side by side or 4-wheeler, a pickup, stock trailer, feed wagon, portable chutes, and cattle panels. Machinery and equipment value is estimated to total on average \$150K. Facilities typically include a calving barn and corrals and approximately 8 to 10 miles of barbed wire fence.

Non-Feed Input Costs

Non-feed input costs can be entered into the budget on a "per animal" or a whole herd basis. In this representative budget, these costs were entered on a per animal basis and include labor, fuel, veterinary and medical cost, and marketing costs. Artificial insemination (AI) expense was entered in total as

those expenses are generally related to breeding the raised replacement heifers.

Labor, fuel, and veterinary and medical costs are allocated to each animal category based on net increase in value during the production year. Marketing costs are broken down by each animal category of the herd and allocated accordingly. For example, cull bull marketing of \$25 per animal is included on the bull budget page and the system budget which is a summary of all projected revenue and expenses at the end of the budget report. The cost of direct marketing and the costs per head to sell thru a nearby sale barn can vary tremendously. Marketing expenses include the sales commission, transportation, and other costs to market. In this budget, both a commission and charge for hauling the cattle to sale are figured into marketing expense. A marketing expense adjustment is added to the backgrounding calves' budget to account for any expense difference from that of the weaned calves.

Other Depreciation, Interest, and Overhead Costs

Depreciation for purchased replacement heifers and bulls is figured in the difference of their cost of purchase to their sale value when culled. These figures are included in the breeding and bull budget pages and are carried over into the total system budget page as income when sold and expense when purchased. Depreciation expense for tax purposes would be handled differently, in consultation with a tax accountant.

Opportunity interest of 3 percent is figured on the value of investment total in the livestock herd. This is an economic cost reflecting what rate of return could

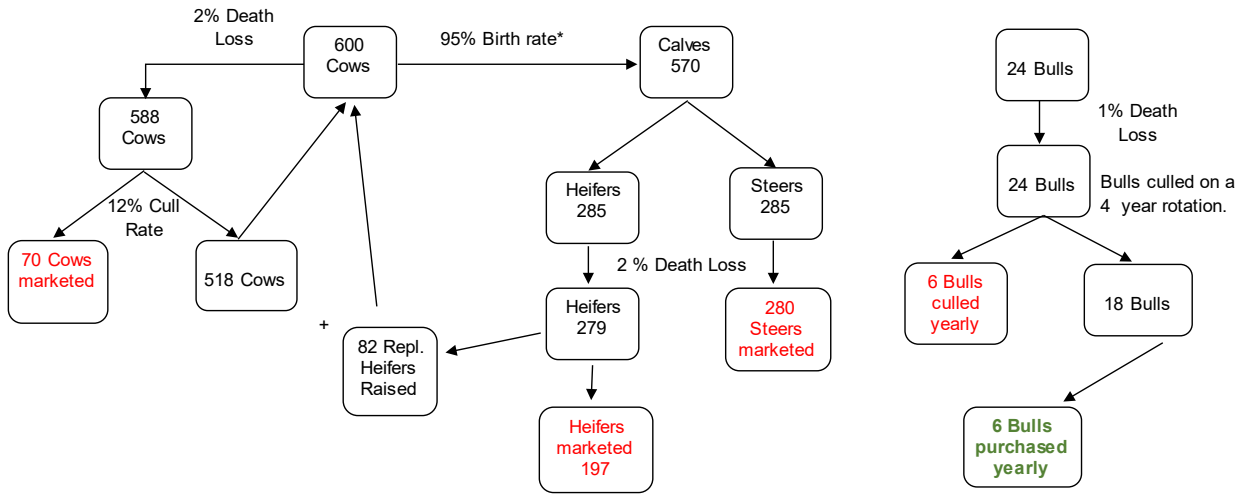
be earned if the herd were sold and the money invested in its most profitable alternative use.

Overhead expenses include the farm's annual insurance premium and professional fees. Real estate value and taxes are not included in this example because, as stated previously, rental costs are paid for all hay, stalks, and pasture. Therefore, this budget assumes that no ground utilized for the cow calf operation is owned by the cow calf enterprise. Real estate tax on the facilities is included in the budget and property tax is included in other expenses for the vehicles and equipment. An annual management charge and other expenses that pertain to the cow calf herd may be entered but are left blank in this representative budget.

Prepared by:

Glennis McClure, Extension Educator – Ag Economics
Troy Walz, Beef Systems Extension Educator
Randy Saner, Beef Systems Extension Educator
T.L. Meyer, Beef Systems Extension Educator
Brent Plugge, Beef Systems Extension Educator
Erin Laborie, Beef Systems Extension Educator

Chart 1: Cow-calf production flowchart, 600 cow herd - Central Nebraska



* approx. 93% weaning rate per exposed cow

600 Head Cow Herd Budget Worksheet pages attached include:

- Bull budget
- Replacement budget
- Breeding herd cash budget
- Backgrounding calf budgets
- Cow-calf System Budget report (summarizes all budget information)

Cow Herd System Budget

Glennis McClure, Extension Educator /Farm & Ranch Management Analyst

This budgeting workbook is designed to provide analysis of the components of a beef production system. This template provides an example of a 600 head cow herd based in central Nebraska. It may be modified for current values, various herd sizes, management practices, and locations.

Budget template designed by Roger Wilson, retired Farm & Ranch Management Analyst



Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska - Lincoln cooperating with the Counties and the United States Department of Agriculture. University of Nebraska - Lincoln Extension programs abide with the nondiscrimination policies of the University of Nebraska - Lincoln and the United States Department of Agriculture.

© The Board of Regents of the University of Nebraska on behalf of the University of Nebraska - Lincoln Extension. All rights reserved.

Budget Inputs

Updated September, 2021

Breeding Herd				
Breeding Females	Herd size	It is assumed that herd size remains stationary so replacements will equal cow culls and cow deaths. If too few replacements are purchased, the worksheet automatically retains heifers.	600	Cows
	Average Cow Value		1,400	\$ / head
	Cows Culled per Year		70	Cows
	Cow Deaths per year		12	head
	Number of Replacements Needed		82	
	Estimated Weaning Rate		93	percent
	Extra Heifers Retained for Breeding that Will Not Be Used as Replacements		0	head
	Culled Replacement Heifer Weight When Sold			pounds
	Culled Replacement Heifer Selling Price			\$ / cwt
	Cost of Marketing Culled Replacement Heifers			\$ / head
	Replacement Females Purchased		(<=82)	head
	Replacement Female Cost (if applicable)			\$ / head
	Cow Cull Weight		1,350	pounds
	Non-Fed Cull Cow Price		64	\$ / cwt
Bulls	Bulls Needed		24	Bull(s)
	Bull Purchase Price		3,000	\$ / head
	Bull use (years)	(<10)	4	years
	Bull Death Loss Rate		1%	
	Cull Bull Price		85	\$ / cwt
	Cull Bull Weight		1,700	pounds
Calves	Calves Weaned	(<=558)	558	head/year
	Steer Weaning Weight		525	
	Heifer Weaning Weight		475	pounds
	Weaned Steer Price	(>=10)	180	\$ / cwt
	Weaned Heifer Price	(>=10)	160	\$ / cwt

Any AI use?

Background Calves				
	Days Fed		75	days
	Death Loss	(0-100)	2	percent
Steers	Retained after Weaning	(<=279)	279	head
	End Weight		675	pounds
	Market Price	(>=10)	165	\$ per cwt
Heifers	Retained after Weaning	(<=197)	197	head
	End Weight		610	pounds
	Market Price	(>=10)	158	\$ per cwt

Stocker				
	Days Fed			days
	Death Loss	(0-100)		percent
Steers	Retained for Grazing	(<=273)		head
	End Weight			pounds
	Market Price	(>=10)		\$ per cwt
Heifers	Retained for Grazing	(<=193)		head
	End Weight			pounds
	Market Price	(>=10)		\$ per cwt

Feedlot				
	Days Fed			days
	Death Loss	(0-100)		percent

Steers	Placed on Feed	(≤0)		head
	End Weight			pounds
	Market Price	(≥10)		\$ per cwt
Heifers	Placed on Feed	(≤0)		head
	End Weight			pounds
	Market Price	(≥10)		\$ per cwt

Fed Cull Cow

Days Fed			days
Death Loss	(0-100)	0	percent
Placed on Feed	(≤70)		head
End Weight			pounds
Market Price	(≥10)		\$ per cwt

Feed

Name	Price per Unit Purchased	Priced Unit (tons, lbs. etc)	Fed Unit (tons, lbs. etc)	Fed Unit per Priced Unit	As Fed Price
Pasture	300.00	5 months	day	150	2.00
Prairie Hay	130.00	ton	lbs	2000	0.07
Alfalfa	150.00	ton	lbs	2000	0.08
DDG Cubes	300.00	ton	lbs	2000	0.15
Salt and Mineral	900.00	ton	ounce	32000	0.03
Corn Stalks	17.50	month	day	30	0.58
Dried Rolled Corn	5.40	bu	lbs	56	0.10

Non-Feed Input Costs

Name	Cost per Year	Is This Cost Per Animal or for All Animals?	Allocation Percentage			
			Breeding Herd	Background Calves (Optional)	Stocker (Optional)	Feedlot (Optional)
Labor	20.00	per animal				
Fuel	20.00	per animal				
Veterinary and Medical	20.00	per animal				
Cull Cow Marketing	25.00	per animal				
Cull Bull Marketing	25.00	per animal				
Cull Replacement Marketing	25.00	per animal				
Weaned Calf Marketing	20.00	per animal				
Backgrounded Calf Marketing -Adj	25.00	per animal				
Stocker Marketing	-	per animal				
Feedlot Marketing	-	per animal				
AI Expense \$40 per new heifers	3,280.00	all animals	100%			

Depreciable Input Costs

Allocat

Name	Current Value	Future Value	Future Value Horizon	Annual Repairs	Breeding Herd (Optional)	Weaned Calf Wintering (Optional)
Barn /fencing	100,000	50,000	20	2,000	100%	
Machinery (Livestock)	150,000	60,000	10	2,000	100%	
Vehicles	35,000	15,000	7	1,200	100%	

Interest	
Operations Interest Rate	6%
Opportunity Rate	3%

Overhead Costs			Allocation Percentage		
	Amount		Breeding Herd (Optional)	Weaned Calf Wintering (Optional)	Stocker (Optional)
Real Estate Value*					
Real Estate Tax*		per year			
Annual Insurance Premium	3,000	per year			
Professional Fees	1,500	per year			
Annual Management Charge		per year			
Other		per year			

Bull Budget (24 Bulls)

Income				Herd Total
	<u>Amount</u>	<u>Weight</u>	<u>Price</u>	<u>Total</u>
Cull Bull Sales	5.94 head @	\$ 1,700.00	\$ 85.00	8,583
Gross Income				8,583

Variable Costs				Herd Total
Breeding Costs				Total
Bulls	6.00		\$ 3,000 per head	18,000
Bull Feed				Total
	Amount per Year		Per Animal or Total	Price
Prairie Hay	5250 lbs		per animal	@ 0.07 per lbs
Pasture	150 day		per animal	@ 2.00 per day
Salt and Mineral	1095 ounce		per animal	@ 0.03 per ounce
DDG Cubes	600 lbs		per animal	@ 0.15 per lbs
Dried Rolled Corn	700 lbs		per animal	@ 0.10 per lbs
Total Feed				19,909
Other Variables				Total
Cull Bull Marketing		25.00	per animal	149
Operations Interest	Operations interest rate times feed and other variable expenses except marketing divided by two.			597
Total Non-feed				746
Total Variable Costs				38,655

Net Expense				30,072
--------------------	--	--	--	---------------

Replacement Budget

82 Head*

Feed Costs				Herd Total	
	Amount per Year		Per Animal or Total	Price	
Pasture	150	day	per animal	@ 2.00 per day	24,600
Alfalfa	1500	lbs	per animal	@ 0.08 per lbs	9,225
Prairie Hay	1500	lbs	per animal	@ 0.07 per lbs	7,995
salt and mineral	1095	ounce	per animal	@ 0.03 per ounce	2,525
DDG Cubes	600	lbs	per animal	@ 0.15 per lbs	7,380
				Total Feed Costs	51,725

Breeding Herd Cash Budget (600 Cows)

Revenue				Herd Total	Per Cow	Per Calf
	<u>Number</u>	<u>Weight</u>	<u>Price</u>	<u>Total</u>		
Weaned Steer Value	279	525	180.00 per cwt	263,655		
Weaned Heifer Value	197	475	160.00 per cwt	149,720		
Cull Cow Sales	70	1,350	64.00 per cwt	60,480		
Replacements Culled	-	-	per cwt			
Gross Income				473,855	789.76	995.49

Variable Cash Costs				Herd Total	Per Cow	Per Calf
Breeding Costs	<u>Number</u>	<u>Price</u>		<u>Total</u>	<u>Total</u>	<u>Total</u>
Bulls	(This amount is the "Net Expenses" from the "Bulls" tab)			30,072	50.12	63.18
Replacements Purchased	\$ per head					
Animal Purchases				30,072	50.12	63.18
Cow Feed	<u>Amount per Year</u>	<u>Per Animal or Total</u>	<u>Price</u>	<u>Total</u>	<u>Total</u>	<u>Total</u>
Pasture	150 day	per animal	@ 2.00 per day	180,000	300.00	378.15
Salt and Mineral	1095 ounce	per animal	@ 0.03 per ounce	18,478	30.80	38.82
Prairie Hay	2000 lbs	per animal	@ 0.07 per lbs	78,000	130.00	163.87
Corn Stalks	120 day	per animal	@ 0.58 per day	42,000	70.00	88.24
DDG Cubes	1000 lbs	per animal	@ 0.15 per lbs	90,000	150.00	189.08
Replacement Heifer Feed	(From Replacement Spreadsheet)			51,725	86.21	108.67
Total Feed				460,203	767.01	966.81
Other Variable	<u>Amount</u>	<u>Unit</u>	<u>Allocation</u>	<u>Total</u>	<u>Total</u>	<u>Total</u>
Labor	20	per animal	94%	11,334	18.89	23.81
Fuel	20	per animal	94%	11,334	18.89	23.81
Veterinary and Medical	20	per animal	94%	11,334	18.89	23.81
Cull Cow Marketing	25	per animal		1,750	2.92	3.68
Cull Replacement Marketing	25	per animal				
Weaned Calf Marketing	20	per animal		9,520	15.87	20.00
AI Expense \$40 per new heifers	3,280	all animals	100%	3,280	5.47	6.89
	-					
Operations Interest	Calculations: Operations interest rate times feed and other variable expenses except marketing divided by two.			15,166	25.28	31.86
Total Non-feed				63,717	106.20	133.86
Total Variable Cash Costs				553,992	923.32	1,163.85

Fixed Cash Costs				Herd Total	Per Cow	Per Calf
Depreciables Input Costs	<u>Repairs</u>	<u>Allocation</u>		<u>Total</u>	<u>Total</u>	<u>Total</u>
Barn /fencing	2,000	100%		2,000	3.33	4.20
Machinery (Livestock)	2,000	100%		2,000	3.33	4.20
Vehicles	1,200	100%		1,200	2.00	2.52
Cash Ownership				5,200	8.67	10.92
Overhead and Management	<u>Amount</u>	<u>Allocation</u>		<u>Total</u>	<u>Total</u>	<u>Total</u>
Real Estate Tax*	-					
Annual Insurance Premium	3,000	94%		2,833	4.72	5.95
Professional Fees	1,500	94%		1,417	2.36	2.98
Annual Management Charge	-					
Other	-					
Total Overhead				4,250	7.08	8.93
Total Fixed Cash Costs				9,450	15.75	19.85

Total Cash Costs	563,442	939.07	1,183.70
-------------------------	----------------	---------------	-----------------

Net Cash Income	(89,587)	(149.31)	(188.21)
------------------------	-----------------	-----------------	-----------------

Non-Cash Costs				Herd Total	Per Cow	Per Calf
Depreciables Input Costs	<u>Depreciation</u>	<u>Oppor-tunity</u>	<u>Allocation</u>	<u>Total</u>	<u>Total</u>	<u>Total</u>
Barn /fencing	2,500	3,000	100%	5,500	9.17	11.55
Machinery (Livestock)	9,000	4,500	100%	13,500	22.50	28.36
Vehicles	2,857	1,050	100%	3,907	6.51	8.21
Opportunity	<u>Amount</u>	<u>Allocation</u>				

Real Estate		94%			
Livestock	28,670	100%	28,670	47.78	60.23
Total Non-Cash Costs			51,577	85.96	108.35
Total Cash and Non-Cash			Herd Total	Per Cow	Per Calf
			Total Costs	615,019	1,025.03
			Total Net Income	(141,164)	(235.27)
				(296.56)	

Backgrounded Calves Budget

75 Days

Revenue				Herd Total	Per Calf Sold
	Number	Weight	Price	Total	Total
Steers	273	675	165 \$ / cwt	304,054	1,113.75
Heifers	193	610	158 \$ / cwt	186,013	963.80
Gross Revenue				490,067	1,051.65

Variable Cash Costs					Herd Total	Per Calf Sold
	Number	Weight	Price		Total	Total
Steer Calves Retained	279	525	180.00 \$ / cwt		263,655	
Heifer Calves Retained	197	475	160.00 \$ / cwt		149,720	
Animals Purchased					413,375	887.07
Feed	Amount Fed per Year		Per Animal or Total	Price	Total	Total
Prairie Hay	900 lbs		per animal	0.07 \$ lbs	27,554	59.13
DDG Cubes	250 lbs		per animal	0.15 \$ lbs	17,663	37.90
Salt and Mineral	250 ounce		per animal	0.03 \$ ounce	3,312	7.11
Dried Rolled Corn	250 lbs		per animal	0.10 \$ lbs	11,354	24.37
Total Feed					59,882	128.50
NonFeed		Amount	Basis	Allocation	Total	Total
Labor		20	per animal	6%	529	1.13
Fuel		20	per animal	6%	529	1.13
Veterinary and Medical		20	per animal	6%	529	1.13
Marketing Adjustment		25	per animal		2,130	4.57
Operations Interest	Calculations: Operations interest rate times feed and other variable expenses except marketing divided by two.				5,475	11.75
Total Non-feed					9,191	19.72
Total Variable Cash Costs					482,448	1,035.30

Fixed Cash Costs				Herd Total	Per Calf Sold	
		Repairs	Allocation	Total	Total	
Depreciables Input Costs						
Machinery (Livestock)		2,000				
Vehicles		1,200				
Total Cash Costs on Depreciables						
Overhead and Management		Amount	Allocation	Total	Total	
Real Estate Tax*						
Annual Insurance Premium		3,000	6%	167	0.36	
Professional Fees		1,500	6%	83	0.18	
Annual Management Charge						
Other						
Total Overhead and Ownership					250	0.54
Total Fixed Cash Costs					250	0.54

Total Cash Costs	482,698	1,035.83
-------------------------	----------------	-----------------

Net Cash Income	7,369	15.81
------------------------	--------------	--------------

Non-Cash Costs				Herd Total	Per Calf Sold
	Depreciation	Oppor-tunity	Allocation	Total	Total
Depreciable Assets					
Machinery (Livestock)	9,000	4,500			
Vehicles	2,857	1,050			
Real Estate		-			
Total Non-Cash Costs					

Total Cash and Non-Cash		Herd Total	Per Calf Sold
Total Costs		482,698	1,035.83
Net Total Income		7,369	15.81

System Budget

600 cow herd - Central Nebraska, Sept. 2021

Revenue				Herd Total
	<u>Number</u>	<u>Weight</u>	<u>Price</u>	<u>Total</u>
Weaned Steers				
Weaned Heifers				
Backgrounded Steers	273	675	165 \$ / cwt	304,054
Backgrounded Heifers	193	610	158 \$ / cwt	186,013
Stocker Steers				
Stocker Heifers				
Fed Steers				
Fed Heifers				
Cull Cow Sales	70	1,350	64 \$ / cwt	60,480
Fed Cull Cow Sales				
Cull Bull Sales	6	1,700	85 \$ / cwt	8,583
Cull Replacement Sales				
Gross Income				559,130

Variable Costs				Herd Total
<u>Animal Purchases</u>	<u>Number</u>	<u>Price</u>		<u>Total</u>
Replacement Females			\$ per head	
Bulls	6.0	3,000	\$ per head	18,000
Total Animals Purchased				18,000

<u>Feed</u>	<u>Amount</u>		<u>Price</u>	<u>Total</u>
Pasture	706.00	5 months @	300.00 per 5 months	211,800
Prairie Hay	936.45	ton @	130.00 per ton	121,739
Alfalfa	61.50	ton @	150.00 per ton	9,225
DDG Cubes	390.68	ton @	300.00 per ton	117,203
Salt and Mineral	27.84	ton @	900.00 per ton	25,054
Corn Stalks	2,400.00	month @	17.50 per month	42,000
Dried Rolled Corn	2,402.68	bu @	5.40 per bu	12,974
Total Feed				539,995

<u>Other Variable</u>	<u>Total</u>
Labor	11,862
Fuel	11,862
Veterinary and Medical	11,862
Cull Cow Marketing	1,750
Cull Bull Marketing	149
Cull Replacement Marketing	
Weaned Calf Marketing	9,520
Backgrounded Calf Marketing -Adj	2,130
Stocker Marketing	
Feedlot Marketing	
AI Expense \$40 per new heifers	3,280

