

Representative Economic Budget for Northern Nebraska Panhandle - 400 Head Cow Herd

Updated December 2021

Background

In the Nebraska Panhandle, two representative size cow herds were identified by producers from the area. In the southern panhandle area, a typical cow herd is 75 head of cows and in the northern area, herd size of 400 head of cows is the norm. Managing a 400 cow herd would provide a large portion of a ranch's revenue. Raising 100% of the hay utilized in the cattle operation is typical. Half of the farms and ranches in the area raise crops as well. Many producers in this area also count on off-farm jobs, with some managing hunting and/or recreational enterprises for supplemental income to meet family income.

This budget should only be used as a guide. Individual producers can utilize the cow calf budget Excel template and enter information that reflects their operation.

It is important to note that feed and hay costs on owned ground, along with pasture and stalk rent expenses are considered separate enterprises. Therefore in this representative budget, feed, hay, pasture, and stalks are included cash feed expenses, valued at current market value. Individual producers may enter an opportunity cost for their land use for the cow calf enterprise in lieu of cash rental expenses in their budgets.

Livestock Management Practices

Calving time for the 400 cow herd in the northern Nebraska panhandle is in the spring months, starting in March and continuing in April and May. Weaning rates typically range from 85 to 90% per exposed cow with 15% of cows culled each year. Producers report that the general practice on these operations is to raise their own replacement heifers.

Chart 1: Cow-calf production flowchart provides production numbers.

Weaning weights for calves range from 485 to 550#. For steers, 550# was entered into this budget and for heifer calves, 525# was entered. Approximately 60 to 70% of calves are sold at weaning in the November timeframe. The other 30 to 40% of calves are backgrounded for 60 to 90 days on grass, gaining 1 to 1.5 pounds per day while typically on irrigated meadow ground and feed supplement. This representative budget indicates 120 calves backgrounded for 75 days.

In the northern panhandle, a majority of pasture is owned (60 to 80%) with the rest rented as needed. Cattle are on pasture from mid-May to the end of October, then winter on range or stalks with hay fed in March and April. Yearling heifers are typically on pasture for 5 months from June thru October, then on stalks with cake (dried distillers or alfalfa), from November to mid-March and hay for two months. Current pasture rental rates in the area are approximately \$50 to \$55 per pair per month or \$1.83/head/day with full care for cows. Twelve acres of pasture per cow calf is needed for the 5 months. A large percentage of operators rent stalk ground and transport their cows to the stalk fields or utilize winter range or pasture. This budget includes a eighty-five cents per head per day charge for this winter feeding period. Bred heifers are fed similar to the cows. Bulls follow a similar feed program to that of the cows, however they are kept separate for part of the year.

Machinery, Equipment, and Facilities Basic equipment utilized for the cow-calf enterprise in the northern panhandle generally includes an ATV, pickup, tractor, stock trailer, feed wagon, portable

chute, and panels. Facilities often include a barn, a calving shed, and corrals.

The value of the machinery and equipment that pertains to use in the cow calf operation is shown in this budget. For example if the ATV is used for other enterprises on the ranch, with 80% use for the cow calf operation, 80% of its current and future value should be entered in to the budget program. If the stock trailer is used 100% of the time in the livestock enterprise, 100% of its current and future value should be included in machinery and equipment or on a separate line for livestock equipment. Annual repair expenses for fixed assets are shown in the budget as fixed cash costs. Depreciation and opportunity costs of ownership are noted in the budget as non-cash costs.

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. 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 \$35 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 expense includes 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.

Other Depreciation, Interest and Overhead Costs

Depreciation for bulls is figured in the difference of cost of purchased bulls to their sale value when sold. These figures are included in the bull budget page and are carried over into the total cow calf system budget page as income when sold and expense when purchased. Depreciation expense for tax purposes would be handled differently and in consultation with a tax accountant. There is no depreciation expense shown for the cows as they are typically replaced by raised heifers.

Opportunity interest of 3% 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 was sold and the money invested in its most profitable alternative use.

Overhead expenses entered into the budget the cow calf enterprise portion of the farm’s annual insurance premium and professional fees. Real estate value and taxes are left blank in this example because, as stated previously, rental costs are paid for all hay, stalks and pasture. Therefore, this budget is making the assumption that no ground utilized for the cow calf operation is owned by the cow calf enterprise. 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:

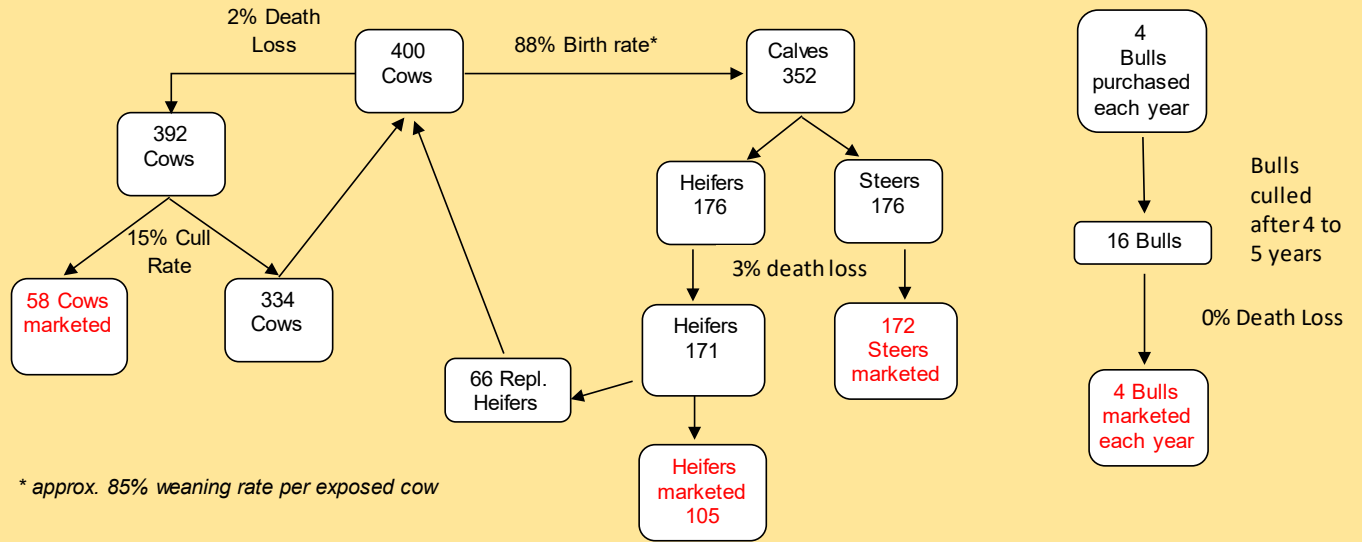
Glennis McClure, Extension Educator in Ag Economics

Jay Parsons, Associate Professor, Ag Economics

Aaron Berger, Extension Educator in Beef Systems



Chart 1: Cow-calf production flowchart, 400 cow herd - Nebraska Panhandle (North)



400 Head Cow Herd Livestock Budget Worksheet pages attached include:

- Budget Input sheets
- Bull budget
- Replacement budget
- Breeding herd cash budget
- Backgrounding calf budget (shows backgrounding cattle revenue and costs)
- 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 for the medium and small sized operator. It includes spreadsheets for analyzing the components of a beef production system separately but provides a combined analysis as well. This template provides an example of a 400 cow herd based in the northern part of the Nebraska panhandle.

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

Panhandle North December 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.	400	Cows
	Average Cow Value		1,300	\$ / head
	Cows Culled per Year		59	Cows
	Cow Deaths per year		4	head
	Number of Replacements Needed		63	
	Estimated Weaning Rate		90	percent
	Extra Heifers Retained for Breeding that Will Not Be Used as Replacements		15	head
	Culled Replacement Heifer Weight When Sold		900	pounds
	Culled Replacement Heifer Selling Price		135	\$ / cwt
	Cost of Marketing Culled Replacement Heifers		30	\$ / head
	Replacement Females Purchased		(<=63)	head
	Replacement Female Cost (if applicable)			\$ / head
	Cow Cull Weight		1,350	pounds
	Non-Fed Cull Cow Price		62	\$ / cwt
Bulls	Bulls Needed		16	Bull(s)
	Bull Purchase Price		3,000	\$ / head
	Bull use (years)	(<10)	4	years
	Bull Death Loss Rate		0%	
	Cull Bull Price		90	\$ / cwt
	Cull Bull Weight		1,700	pounds
Calves	Calves Weaned	(<=360)	353	head/year
	Steer Weaning Weight		550	
	Heifer Weaning Weight		525	pounds
	Weaned Steer Price	(>=10)	168	\$ / cwt
	Weaned Heifer Price	(>=10)	165	\$ / cwt

Backgrounding Calves				
	Days Fed		75	days
	Death Loss	(0-100)	0	percent
Steers	Retained after Weaning	(<=180)	70	head
	End Weight		650	pounds
	Market Price	(>=10)	173	\$ per cwt
Heifers	Retained after Weaning	(<=102)	50	head
	End Weight		625	pounds
	Market Price	(>=10)	168	\$ per cwt

Stocker				
	Days Fed			days
	Death Loss	(0-100)		percent
Steers	Retained for Grazing	(<=70)		head
	End Weight			pounds
	Market Price	(>=10)		\$ per cwt
Heifers	Retained for Grazing	(<=50)		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	(≤59)		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
Summer Pasture	1.83	day	day	1	1.83
Corn Stalks/Winter Range-Pasture	0.85	day	day	1	0.85
Prairie Hay	140.00	ton	lbs	2000	0.07
Alfalfa	200.00	ton	lbs	2000	0.10
DDG Cubes	350.00	ton	lbs	2000	0.18
Salt and Mineral	960.00	ton	ounce	32000	0.03
Corn	5.75	bu	lbs	56	0.10
Irrigated meadow /grass	1.83	day	day	1	1.83

Non-Feed Input Costs

Name	Cost per Year	Is This Cost Per Animal or for All Animals?	Allocation Percentage			
			Breeding Herd	Wintered Calf (Optional)	Stocker (Optional)	Feedlot (Optional)
Labor	125.00	per animal				
Fuel	35.00	per animal				
Veterinary and Medical	35.00	per animal				
Cull Cow Marketing	35.00	per animal				
Cull Bull Marketing	35.00	per animal				
Cull Replacement Marketing		per animal				
Weaned Calf Marketing	25.00	per animal				
Backgrounded Calf Marketing	25.00	per animal				
Stocker Marketing	-	per animal				
Feedlot Marketing	-	per animal				

Depreciable Input Costs

Allocation Pe

Name	Current Value	Future Value	Time Horizon	Annual Repairs	Breeding Herd (Optional)	Weaned Calf Wintering (Optional)
Barn	30,000	15,000	20	1,000		
Machinery & Equipment	80,000	35,000	10	2,000		
Vehicles	45,000	15,000	7	1,200		

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	1,100	per year			
Annual Insurance Premium	2,500	per year			
Professional Fees	1,000	per year			
Annual Management Charge		per year			
Other	1,000	per year			

Bull Budget (16 Bulls)

Income				Herd Total
	<u>Amount</u>	<u>Weight</u>	<u>Price</u>	<u>Total</u>
Cull Bull Sales	4.00 head @	\$ 1,700.00	\$ 90.00	6,120
Gross Income				6,120

Variable Costs				Herd Total
<u>Breeding Costs</u>	<u>Number</u>		<u>Price</u>	<u>Total</u>
Bulls	4.00		\$ 3,000 per head	12,000
<u>Bull Feed</u>	<u>Amount per Year</u>		<u>Per Animal or Total</u>	<u>Price</u>
Summer Pasture	165	day	per animal	@ 1.83 per day
Corn Stalks/Winter Range-Pasture	120	day	per animal	@ 0.85 per day
Salt and Mineral	1095	ounce	per animal	@ 0.03 per ounce
Prairie Hay	2000	lbs	per animal	@ 0.07 per lbs
Alfalfa	1000	lbs	per animal	@ 0.10 per lbs
Total Feed				10,829
<u>Other Variables</u>			<u>Allocation</u>	<u>Total</u>
Cull Bull Marketing			35.00 per animal	140
Operations Interest	Operations interest rate times feed and other variable expenses except marketing divided by two.			325
Total Non-feed				465
Total Variable Costs				23,294

Net Expense				17,174
--------------------	--	--	--	---------------

Replacement Budget

78 Head*

Feed Costs				Herd Total	
	Amount per Year		Per Animal or Total	Price	
Summer Pasture	150	day	per animal	@ 1.83 per day	21,411
Corn Stalks/Winter Range-Pastu	135	day	per animal	@ 0.85 per day	8,951
Prairie Hay	1400	lbs	per animal	@ 0.07 per lbs	7,644
DDG Cubes	350	lbs	per animal	@ 0.18 per lbs	4,778
salt and mineral	1095	ounce	per animal	@ 0.03 per ounce	2,562
				Total Feed Costs	45,345

Breeding Herd Cash Budget (400 Cows)

Revenue	Number	Weight	Price	Herd Total	Per Cow	Per Calf
Weaned Steer Value	177	550	168.00 per cwt	163,548		
Weaned Heifer Value	99	525	165.00 per cwt	85,759		
Cull Cow Sales	59	1,350	62.00 per cwt	49,383		
Replacements Culled	15	900	135.00 per cwt	18,225		
Gross Income				316,915	792.29	1148.24

Variable Cash Costs	Number	Weight	Price	Herd Total	Per Cow	Per Calf
Breeding Costs				Total	Total	Total
Bulls	(This amount is the "Net Expenses" from the "Bulls" tab)			17,174	42.93	62.22
Replacements Purchased	\$ per head					
Animal Purchases				17,174	42.93	62.22
Cow Feed	Amount per Year	Unit	Per Animal or Total Price	Total	Total	Total
Summer Pasture	165	day	per animal @ 1.83 per day	120,780	301.95	437.61
Salt and Mineral	1095	ounce	per animal @ 0.03 per ounce	13,140	32.85	47.61
Prairie Hay	2000	lbs	per animal @ 0.07 per lbs	56,000	140.00	202.90
Corn Stalks/Winter Range-Pasture	120	day	per animal @ 0.85 per day	40,800	102.00	147.83
Alfalfa	1000	lbs	per animal @ 0.10 per lbs	40,000	100.00	144.93
Replacement Heifer Feed	(From Replacement Spreadsheet)			45,345	113.36	164.29
Total Feed				316,065	790.16	1,145.16
Other Variable	Amount	Unit	Allocation	Total	Total	Total
Labor	125	per animal	98%	48,756	121.89	176.65
Fuel	35	per animal	98%	13,652	34.13	49.46
Veterinary and Medical	35	per animal	98%	13,652	34.13	49.46
Cull Cow Marketing	35	per animal		2,065	5.16	7.48
Cull Replacement Marketing	-	per animal				
Weaned Calf Marketing	25	per animal		4,050	10.13	14.67
Operations Interest	Calculations: Operations interest rate times feed and other variable expenses except marketing divided by two.			11,960	29.90	41.24
Total Non-feed				94,134	235.34	338.97
Total Variable Cash Costs				427,373	1,068.43	1,546.36

Fixed Cash Costs	Repairs	Allocation	Herd Total	Per Cow	Per Calf
Depreciables Input Costs			Total	Total	Total
Barn	1,000	98%	975	2.44	3.53
Machinery & Equipment	2,000	98%	1,950	4.88	7.07
Vehicles	1,200	98%	1,170	2.93	4.24
Cash Ownership			4,096	10.24	14.84
Overhead and Management	Amount	Allocation	Total	Total	Total
Real Estate Tax	1,100	98%	1,073	2.68	3.89
Annual Insurance Premium	2,500	98%	2,438	6.09	8.83
Professional Fees	1,000	98%	975	2.44	3.53
Annual Management Charge	-				
Other	1,000	98%	975	2.44	3.53
Total Overhead			5,461	13.65	19.79
Total Fixed Cash Costs			9,556	23.89	34.62

Total Cash Costs	436,929	1,092.32	1,580.98
-------------------------	----------------	-----------------	-----------------

Net Cash Income	(120,014)	(300.04)	(432.74)
------------------------	------------------	-----------------	-----------------

Non-Cash Costs	Depreciation	Opportunity	Allocation	Herd Total	Per Cow	Per Calf
Depreciables Input Costs				Total	Total	Total
Barn	750	900	98%	1,609	4.02	5.83
Machinery & Equipment	4,500	2,400	98%	6,728	16.82	24.38
Vehicles	4,286	1,350	98%	5,495	13.74	19.91
Opportunity	Amount	Allocation				
Real Estate		98%				
Livestock	18,714	100%		18,714	46.79	67.81

	Total Non-Cash Costs	32,547	81.37	117.92
Total Cash and Non-Cash		Herd Total	Per Cow	Per Calf
	Total Costs	469,476	1,173.69	1,698.91
	Total Net Income	(152,561)	(381.40)	(550.67)

Backgrounding Calf Budget

75 Days

Revenue				Herd Total	Per Calf Sold
	Number	Weight	Price	Total	Total
Steers	70	650	173 \$ / cwt	78,715	1,124.50
Heifers	50	625	168 \$ / cwt	52,500	1,050.00
Gross Revenue				131,215	1,093.46

Variable Cash Costs				Herd Total	Per Calf Sold
	Number	Weight	Price	Total	Total
Steer Calves Retained	70	550	168.00 \$ / cwt	64,680	
Heifer Calves Retained	50	525	165.00 \$ / cwt	43,313	
Animals Purchased				107,993	899.94
Feed	Amount Fed per Year	Per Animal or Total	Price	Total	Total
Irrigated meadow /grass	75 day	per animal	1.83 \$ day	16,470	137.25
DDG Cubes	225 lbs	per animal	0.18 \$ lbs	4,725	39.38
Salt and Mineral	225 ounce	per animal	0.03 \$ ounce	810	6.75
		per animal			
		per animal			
Total Feed				22,005	183.38
NonFeed	Amount	Basis	Allocation	Total	Total
Labor	125	per animal	2%	373	3.11
Fuel	35	per animal	2%	104	0.87
Veterinary and Medical	35	per animal	2%	104	0.87
Backgrounded Calf Marketing	25	per animal		3,000	25.00
Operations Interest	Calculations: Operations interest rate times feed and other variable expenses except marketing divided by two.			1,471	12.26
Total Non-feed				5,053	42.11
Total Variable Cash Costs				135,051	1,125.42

Fixed Cash Costs				Herd Total	Per Calf Sold
Depreciables Input Costs	Repairs	Allocation		Total	Total
Machinery & Equipment	2,000	2%		50	0.41
Vehicles	1,200	2%		30	0.25
Total Cash Costs on Depreciables				80	0.66
Overhead and Management	Amount	Allocation		Total	Total
Real Estate Tax	1,100	2%		27	0.23
Annual Insurance Premium	2,500	2%		62	0.52
Professional Fees	1,000	2%		25	0.21
Annual Management Charge					
Other	1,000	2%		25	0.21
Total Overhead and Ownership				139	1.16
Total Fixed Cash Costs				219	1.82

Total Cash Costs				135,270	1,127.25
-------------------------	--	--	--	----------------	-----------------

Net Cash Income				-4,055	(33.79)
------------------------	--	--	--	---------------	----------------

Non-Cash Costs				Herd Total	Per Calf Sold
Depreciable Assets	Depreciation	Opportunity	Allocation	Total	Total
Machinery & Equipment	4,500	2,400	2%	172	1.43
Vehicles	4,286	1,350	2%	140	1.17
Real Estate					
Total Non-Cash Costs				312	2.60

Total Cash and Non-Cash				Herd Total	Per Calf Sold
				Total Costs	Total
				135,582	1,129.85

Net Total Income				-4,367	(36.39)
-------------------------	--	--	--	---------------	----------------

System Budget

Revenue				Herd Total
	<u>Number</u>	<u>Weight</u>	<u>Price</u>	<u>Total</u>
Weaned Steers	107	550	168 \$ / cwt	98,868
Weaned Heifers	49	525	165 \$ / cwt	42,446
Backgrounded Steers	70	650	173 \$ / cwt	78,715
Backgrounded Heifers	50	625	168 \$ / cwt	52,500
Stocker Steers				
Stocker Heifers				
Fed Steers				
Fed Heifers				
Cull Cow Sales	59	1,350	62 \$ / cwt	49,383
Fed Cull Cow Sales				
Cull Bull Sales	4	1,700	90 \$ / cwt	6,120
Cull Replacement Sales	15	900	135 \$ / cwt	18,225
Gross Income				346,257

Variable Costs				Herd Total
<u>Animal Purchases</u>	<u>Number</u>	<u>Price</u>		<u>Total</u>
Replacement Females			\$ per head	
Bulls	4.0	3,000	\$ per head	12,000
Total Animals Purchased				12,000
<u>Feed</u>	<u>Amount</u>		<u>Price</u>	<u>Total</u>
Summer Pasture	80,340.00	day @	1.83 per day	147,022
Corn Stalks/Winter Range-Pasture	60,450.00	day @	0.85 per day	51,383
Prairie Hay	470.60	ton @	140.00 per ton	65,884
Alfalfa	208.00	ton @	200.00 per ton	41,600
DDG Cubes	27.15	ton @	350.00 per ton	9,503
Salt and Mineral	17.75	ton @	960.00 per ton	17,038
Corn		bu @	5.75 per bu	
Irrigated meadow /grass	9,000.00	day @	1.83 per day	16,470
Total Feed				348,899
<u>Other Variable</u>				<u>Total</u>
Labor				49,129
Fuel				13,756
Veterinary and Medical				13,756
Cull Cow Marketing				2,065
Cull Bull Marketing				140
Cull Replacement Marketing				
Weaned Calf Marketing				4,050
Backgrounded Calf Marketing				3,000
Stocker Marketing				
Feedlot Marketing				

