

150 Head Cow Herd – Representative Budget for South Central Nebraska

Background

Cattle production in south central Nebraska is an important economic driver. In this area of the state, a 150-cow herd is representative of the area. With this size of operation, a farm or ranch operator can handle most of the labor themselves. Once an operation gets to the 300 head cow count, then a salaried employee may be necessary, especially if family labor is not adequate. In addition to the 150-cow herd, producers typically raise row crops and hay for feed and to sell. The cow-calf operation represents 30 to 40% of a typical farm's gross income in this area.

Livestock Management Practices

Typical calving time for farms in south central Nebraska is March and April. Half of the cow calf operations keep replacement heifers of their own and the other half buy replacement heifers. Calves not held back for replacements or for pre-conditioning are sold at weaning (typically 205 days). Weaning rate per exposed cow is figured at 93%. Weaning time for the calves is in the fall each year with weaning weights averaging 525 to 575 pounds per calf. For this budget example, half of the weaned calves are kept for a sixty-day period for pre-conditioning where they will gain from 90 to 150 pounds. The pre-conditioned calves are generally sold after the first of the year depending on the producer's income tax plan. The cull rate for cows is approximately 10% annually, while bulls are culled every 4 to 5 years.

Chart 1: Cow-calf production flowchart provides production numbers for a typical 150 cow herd in the south-central area of Nebraska.

Pasture and Feed

Pasture and annual forages are utilized for the herd from May through September, then crop residue (corn stalks) and some cover crops are utilized from October up to March 1st. Supplementation is provided to the cows during pre-calving through calving season, February to April.

In this region of Nebraska, fifty percent of the pasture and crop residue land utilized for the cow-calf herd is owned with operators renting the other half for their cattle. Current pasture rental rates in the area are \$50 to \$60 per pair per month with pasture utilized for the herd from the May to September timeframe each year.

Raised feed and hay costs along with pasture and stalk rent expenses are included in the accompanying representative budget as cash feed expenses, even though a producer may own their own pasture, hay, and crop residue or stalk ground and raise their own feed grains. Typically pasture, hay, and raised crops should be considered as separate enterprises where the option of selling the products exists. Individual producers may indicate an opportunity cost for their land use for the cow-calf enterprise in lieu of current cash feed value or rental expenses in their budgets.

Machinery, Equipment and Facilities

Equipment utilized for the cattle enterprise includes a pickup, small 100 to 150 HP tractor with bucket, a stock trailer, feed wagon, portable chute, fence, and gate panels, and in many cases an ATV. Facilities typically include a steel or wood barn, a calving shed, corrals and barb wire fencing of approximately two miles and temporary fencing for stalks. Annual repair expenses for machinery and facilities 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 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.

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.

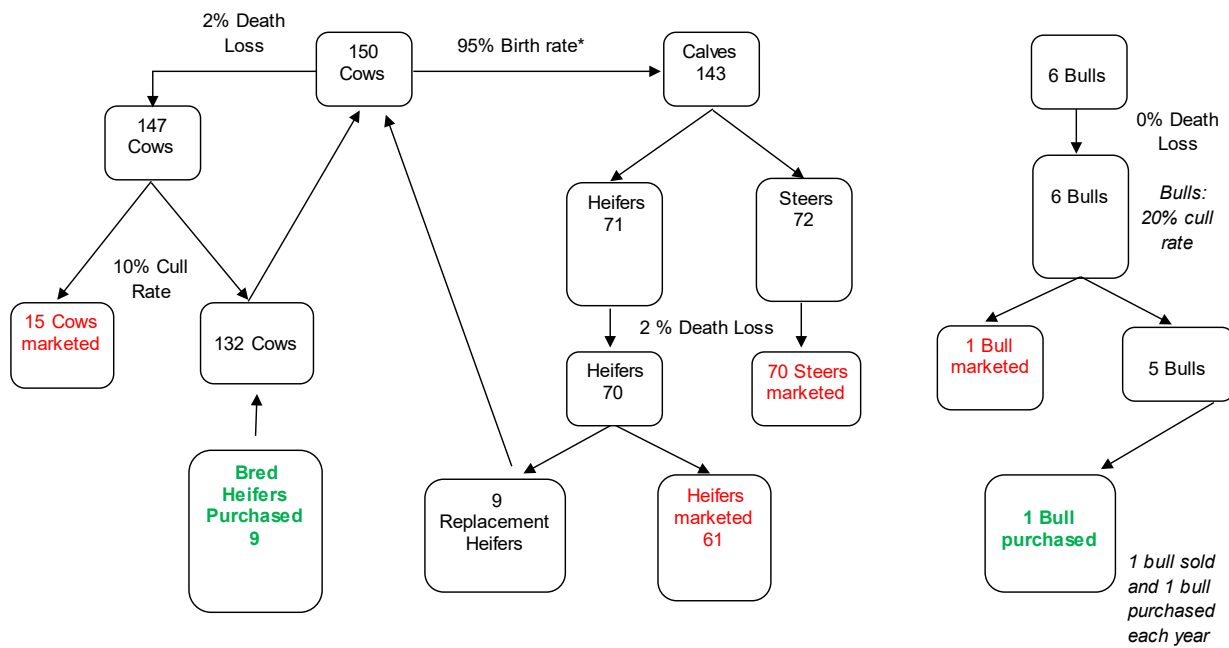
Opportunity interest of 3 percent is figured on the value of investment total in the livestock herd. This is an economic cost reflecting what rate of return could be earned if the herd were sold and the money invested in its most profitable alternative use.

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 in Ag Economics
Erin Laborie, Beef Systems Extension Educator
Brad Schick, Beef Systems Extension Educator
Brent Plugge, Beef Systems Extension Educator
Randy Saner, Beef Systems Extension Educator*

Chart 1: Cow-calf production flowchart, 150 cow herd - South Central Nebraska



50 - 50 % raised vs purchased heifers
 * approx. 93% weaning rate per exposed cow

150 Head Cow Herd Livestock Budget Worksheet pages attached include:

- Budget Input sheets
- Bull budget
- Replacement budget
- Breeding herd cash budget
- Pre-conditioned calves' worksheet
- 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 150 cow herd budget based in South Central Nebraska. It may be modified for various herd sizes, management practices, and locations.



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Budget Inputs

updated August, 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.	150	Cows
	Average Cow Value		1,400	\$ / head
	Cows Culled per Year		15	Cows
	Cow Deaths per year		3	head
	Number of Replacements Needed		18	
	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 (<=18)		9	head
	Replacement Female Cost (if applicable)		2,000	\$ / head
	Cow Cull Weight		1,300	pounds
	Non-Fed Cull Cow Price		64	\$ / cwt
Bulls	Bulls Needed		6	Bull(s)
	Bull Purchase Price		3,000	\$ / head
	Bull use (years) (<10)		5	years
	Bull Death Loss Rate		0%	
	Cull Bull Price		85	\$ / cwt
	Cull Bull Weight		1,800	pounds
Calves	Calves Weaned (<=140)		140	head/year
	Steer Weaning Weight		575	
	Heifer Weaning Weight		525	pounds
	Weaned Steer Price (>=10)		175	\$ / cwt
	Weaned Heifer Price (>=10)		150	\$ / cwt

Pre-conditioned Calves				
	Days Fed		60	days
	Death Loss (0-100)		0	percent
Steers	Retained after Weaning (<=70)		35	head
	End Weight		700	pounds
	Market Price (>=10)		155	\$ per cwt
Heifers	Retained after Weaning (<=61)		35	head
	End Weight		650	pounds
	Market Price (>=10)		140	\$ per cwt

Stocker				
	Days Fed			days
	Death Loss (0-100)			percent
Steers	Retained for Grazing (<=35)			head
	End Weight			pounds
	Market Price (>=10)			\$ per cwt
Heifers	Retained for Grazing (<=35)			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	(≤15)		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
Creep Feed	300.00	ton	lbs	2000	0.15
Pasture	55.00	1 month	day	30	1.83
Prairie Hay	130.00	ton	lbs	2000	0.07
Alfalfa	190.00	ton	lbs	2000	0.10
DDG Cubes	240.00	ton	lbs	2000	0.12
Salt and Mineral	900.00	ton	ounce	32000	0.03
Silage	50.00	ton	lbs	2000	0.03
Corn	6.40	bu	lbs	56	0.11
Wet Distiller's Grain	100.00	ton	lbs	2000	0.05
Corn Stalks	0.50	day	day	1	0.50

Non-Feed Input Costs

Name	Cost per Year	Is This Cost Per Animal or for All Animals?	Allocation Percentage			
			Breeding Herd	Pre-Conditioned calves (Optional)	Stocker (Optional)	Feedlot (Optional)
Labor	10.00	per animal				
Fuel / transportation	15.00	per animal				
Veterinary and Medical	30.00	per animal				
Cull Cow Marketing	30.00	per animal	100%	0%	0%	0%
Cull Bull Marketing	30.00	per animal	100%	0%	0%	0%
Cull Replacement Marketing	30.00	per animal	100%	0%	0%	0%
Weaned Calf Marketing	25.00	per animal	100%	0%	0%	0%
Calf Marketing	25.00	per animal	0%	100%	0%	0%
Stocker Marketing	-	per animal	0%	0%	0%	0%
Feedlot Marketing	-	per animal	0%	0%	0%	0%

Depreciable Input Costs

Allocation Pe

Name	Current Value	Future Value	Future Value Horizon	Annual Repairs	Breeding Herd (Optional)	Weaned Calf Wintering (Optional)
Fencing	25,000	10,000	20	1,000	100%	
Machinery (Livestock)	100,000	25,000	10	2,000	100%	
Vehicles	30,000	10,000	7	1,000	40%	
Barn	30,000	10,000	20	500	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	1,500	per year			
Professional Fees	750	per year			
Annual Management Charge		per year			
Other		per year			

Bull Budget (6 Bulls)

Income				Herd Total
	<u>Amount</u>	<u>Weight</u>	<u>Price</u>	<u>Total</u>
Cull Bull Sales	1.20 head @	\$ 1,800.00	\$ 85.00	1,836
Gross Income				1,836

Variable Costs				Herd Total
Breeding Costs				Total
Bulls	1.20	\$ 3,000	per head	3,600
Bull Feed				Total
	Amount per Year		Per Animal or Total	Price
Prairie Hay	2000 lbs		per animal	@ 0.07 per lbs 780
Pasture	180 day		per animal	@ 1.83 per day 1,980
Salt and Mineral	1460 ounce		per animal	@ 0.03 per ounce 246
Corn Stalks	90 day		per animal	@ 0.50 per day 270
Wet Distiller's Grain	350 lbs		per animal	@ 0.05 per lbs 105
Total Feed				3,381
Other Variables				Total
Cull Bull Marketing		30.00	per animal	36
Operations Interest	Operations interest rate times feed and other variable expenses except marketing divided by two.			101
Total Non-feed				137
Total Variable Costs				7,119

Net Expense				5,283
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Replacement Budget

9 Head*

Feed Costs					Herd Total
	Amount per Year		Per Animal or Total	Price	
Pasture	150	day	per animal	@ 1.83 per day	2,475
Corn Stalks	120	day	per animal	@ 0.50 per day	540
Prairie Hay	2700	lbs	per animal	@ 0.07 per lbs	1,580
Wet Distiller's Grain	800	lbs	per animal	@ 0.05 per lbs	360
salt and mineral	1200	ounce	per animal	@ 0.03 per ounce	304
Total Feed Costs					5,258

Breeding Herd Cash Budget (150 Cows)

Revenue				Herd Total	Per Cow	Per Calf
	Number	Weight	Price	Total		
Weaned Steer Value	70	575	175.00 per cwt	70,438		
Weaned Heifer Value	61	525	150.00 per cwt	48,038		
Cull Cow Sales	15	1,300	64.00 per cwt	12,480		
Replacements Culled	-	-	per cwt			
Gross Income				130,955	873.03	999.66

Variable Cash Costs				Herd Total	Per Cow	Per Calf
Breeding Costs				Total	Total	Total
Bulls	(This amount is the "Net Expenses" from the "Bulls" tab)			5,283	35.22	40.33
Replacements Purchased	9	2,000 \$ per head		18,000	120.00	137.40
Animal Purchases				23,283	155.22	177.73
Cow Feed				Total	Total	Total
Pasture	150	day	per animal @ 1.83 per day	41,250	275.00	314.89
Salt and Mineral	1400	ounce	per animal @ 0.03 per ounce	5,906	39.38	45.09
Prairie Hay	1800	lbs	per animal @ 0.07 per lbs	17,550	117.00	133.97
Corn Stalks	120	day	per animal @ 0.50 per day	9,000	60.00	68.70
DDG Cubes	500	lbs	per animal @ 0.12 per lbs	9,000	60.00	68.70
Replacement Heifer Feed	(From Replacement Spreadsheet)			5,258	35.06	40.14
Total Feed				87,965	586.43	671.48
Other Variable				Total	Total	Total
Labor	10	per animal	98%	1,465	9.76	11.18
Fuel / transportation	15	per animal	98%	2,197	14.65	16.77
Veterinary and Medical	30	per animal	98%	4,394	29.29	33.54
Cull Cow Marketing	30	per animal		450	3.00	3.44
Cull Replacement Marketing	30	per animal				
Weaned Calf Marketing	25	per animal		1,525	10.17	11.64
Operations Interest	Calculations: Operations interest rate times feed and other variable expenses except marketing divided by two.			3,042	20.28	24.93
Total Non-feed				13,072	87.14	101.50
Total Variable Cash Costs				124,319	828.79	950.71

Fixed Cash Costs				Herd Total	Per Cow	Per Calf
Depreciables Input Costs				Total	Total	Total
Fencing	1,000	100%		1,000	6.67	7.63
Machinery (Livestock)	2,000	100%		2,000	13.33	15.27
Vehicles	1,000	40%		400	2.67	3.05
Barn	500	100%		500	3.33	3.82
Cash Ownership				3,900	26.00	29.77
Overhead and Management				Total	Total	Total
Real Estate Tax	-					
Annual Insurance Premium	1,500	98%		1,465	9.76	11.18
Professional Fees	750	98%		732	4.88	5.59
Annual Management Charge	-					
Other	-					
Total Overhead				2,197	14.65	16.77
Total Fixed Cash Costs				6,097	40.65	46.54

Total Cash Costs	130,416	869.44	997.25
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Net Cash Income	539	3.59	2.40
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Non-Cash Costs				Herd Total	Per Cow	Per Calf
Depreciables Input Costs				Total	Total	Total
Fencing	750	750	100%	1,500	10.00	11.45
Machinery (Livestock)	7,500	3,000	100%	10,500	70.00	80.15
Vehicles	2,857	900	40%	1,503	10.02	11.47
Barn	1,000	900	100%	1,900	12.67	14.50
Opportunity						
Real Estate			98%			
Livestock	6,920	100%		6,920	46.14	52.83

	Total Non-Cash Costs	22,323	148.82	170.41
Total Cash and Non-Cash		Herd Total	Per Cow	Per Calf
	Total Costs	152,739	1,018.26	1,167.66
	Total Net Income	(21,784)	(145.23)	(168.00)

Pre-condition Calves

60 Days

Revenue				Herd Total	Per Calf Sold
	Number	Weight	Price	Total	Total
Steers	35	700	155 \$ / cwt	37,975	1,085.00
Heifers	35	650	140 \$ / cwt	31,850	910.00
Gross Revenue				69,825	997.50

Variable Cash Costs					Herd Total	Per Calf Sold
	Number	Weight	Price	Total		
Steer Calves Retained	35	575	175.00 \$ / cwt	35,219		
Heifer Calves Retained	35	525	150.00 \$ / cwt	27,563		
Animals Purchased				62,781	896.88	
Feed						
	Amount Fed per Year		Per Animal or Total	Price	Total	Total
Wet Distiller's Grain	360 lbs		per animal	0.05 \$ lbs	1,260	18.00
Prairie Hay	700 lbs		per animal	0.07 \$ lbs	3,185	45.50
Salt and Mineral	200 ounce		per animal	0.03 \$ ounce	394	5.63
Corn	250 lbs		per animal	0.11 \$ lbs	2,000	28.57
Total Feed					6,839	97.70
NonFeed						
	Amount	Basis	Allocation	Total	Total	
Labor	10	per animal	2%	17	0.24	
Fuel / transportation	15	per animal	2%	25	0.35	
Veterinary and Medical	30	per animal	2%	50	0.71	
Calf Marketing	25	per animal		1,750	25.00	
Operations Interest	Calculations: Operations interest rate times feed and other variable expenses except marketing divided by two.			656	9.38	
Total Non-feed				2,497	35.68	
Total Variable Cash Costs				72,117	1,030.25	

Fixed Cash Costs				Herd Total	Per Calf Sold
Depreciables Input Costs				Total	Total
Machinery (Livestock)	Repairs	2,000	Allocation		
Vehicles	1,000		60%	600	8.57
Barn	500				
Total Cash Costs on Depreciables				600	8.57
Overhead and Management					
	Amount		Allocation	Total	Total
Real Estate Tax					
Annual Insurance Premium	1,500		2%	35	0.51
Professional Fees	750		2%	18	0.25
Annual Management Charge					
Other					
Total Overhead and Ownership				53	0.76
Total Fixed Cash Costs				653	9.33

Total Cash Costs	72,770	1,039.58
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Net Cash Income	-2,945	(42.08)
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Non-Cash Costs				Herd Total	Per Calf Sold
Depreciable Assets				Total	Total
	Depreciation	Oppor-tunity	Allocation		
Machinery (Livestock)	7,500	3,000			
Vehicles	2,857	900	60%	2,254	32.20
Barn	1,000	900			
Real Estate					
Total Non-Cash Costs				2,254	32.20

Total Cash and Non-Cash				Herd Total	Per Calf Sold
Total Costs				75,025	1,071.78
Net Total Income				-5,200	(74.28)

System Budget

150 Cow Herd - SC Nebraska

Revenue				Herd Total
	Number	Weight	Price	Total
Weaned Steers	35	575	175 \$ / cwt	35,219
Weaned Heifers	26	525	150 \$ / cwt	20,475
Pre-conditioned Steers	35	700	155 \$ / cwt	37,975
Pre-conditioned Heifers	35	650	140 \$ / cwt	31,850
Stocker Steers				
Stocker Heifers				
Fed Steers				
Fed Heifers				
Cull Cow Sales	15	1,300	64 \$ / cwt	12,480
Fed Cull Cow Sales				
Cull Bull Sales	1	1,800	85 \$ / cwt	1,836
Cull Replacement Sales				
Gross Income				139,835

Variable Costs			Herd Total
Animal Purchases	Number	Price	Total
Replacement Females	9	2,000 \$ per head	18,000
Bulls	1.2	3,000 \$ per head	3,600
Total Animals Purchased			21,600

Feed	Amount		Price	Total
Creep Feed		ton @	300.00 per ton	
Pasture	831.00	1 month @	55.00 per 1 month	45,705
Prairie Hay	177.65	ton @	130.00 per ton	23,095
Alfalfa		ton @	190.00 per ton	
DDG Cubes	37.50	ton @	240.00 per ton	9,000
Salt and Mineral	7.61	ton @	900.00 per ton	6,850
Silage		ton @	50.00 per ton	
Corn	312.50	bu @	6.40 per bu	2,000
Wet Distiller's Grain	17.25	ton @	100.00 per ton	1,725
Corn Stalks	19,620.00	days @	0.50 per day	9,810
Total Feed				98,185

Other Variable	Total
Labor	1,481
Fuel / transportation	2,222
Veterinary and Medical	4,443
Cull Cow Marketing	450
Cull Bull Marketing	36
Cull Replacement Marketing	
Weaned Calf Marketing	1,525
Calf Marketing	1,750
Stocker Marketing	
Feedlot Marketing	

Operations Interest	Calculations: Operations interest rate times feed and other variable expenses except marketing divided by two.	3,799
	Total Other	15,706
Total Variable Costs		135,491
Fixed Cash Costs		
Depreciables Input Costs	Repairs	Herd Total
		Total
Fencing	1000	1,000
Machinery (Livestock)	2000	2,000
Vehicles	1000	1,000
Barn	500	500
	Total Ownership	4,500
Overhead and Management		Total
Real Estate Tax		
Insurance		1,500
Professional Fees		750
Management		
Other		
	Total Overhead	2,250
Total Fixed Cash Costs		6,750
Total Cash Costs		142,241
Net Cash Income		(2,406)

Non-Cash Costs		Herd Total
Depreciables Costs	Depre-ciation Opportunity	Total
Fencing	750 750	1,500
Machinery (Livestock)	7,500 3,000	10,500
Vehicles	2,857 900	3,757
Barn	1,000 900	1,900
Opportunity		
Real Estate Opportunity	Investment rate times real estate value	
Livestock	Investment rate times livestock value	6,920
Total Non-Cash Costs		24,577

Total Cash and Non-Cash		Herd Total
Total Costs		166,818
Net Total Income		(26,984)