

FARM MANAGEMENT GUIDE

KSU Dairy Cow Budget- Raised Replacements

Current Prices

(as of Dec. 4th, 2017)

Production Efficiency Information

Milk Produced Per Cow (lbs)	23,500	Cull Cows Sales	28.0%	Calves Sold at Birth	46%
Cull Replacements Sold	5.0%	Cull Yearlings Sold	2.0%	Repl. Heifer Death Loss	9.00%
Replacement Heifer Turnover	34.0%				

Returns	Price	Unit		Qty	Unit		Total per Cow/Year	Total per CWT Milk/Year
Milk Sales	\$ 17.30	per cwt	x	23500	lbs	=	\$ 4,065.50	\$ 17.30
Milk Premiums	\$ -	per cwt	x	23500	lbs	=	\$ -	\$ -
Calves Sold	\$ 140.00	per head	x	0.46	hd	=	\$ 64.40	\$ 0.27
Cull Cows Sold	\$ 49.25	per cwt	x	1350	lbs	x 0.28 =	\$ 186.17	\$ 0.79
Cull Replacements Sold	\$ 107.00	per cwt	x	1250	lbs	x 0.05 =	\$ 66.88	\$ 0.28
Cull Yearlings Sold	\$ 142.00	per cwt	x	725	lbs	x 0.02 =	\$ 20.59	\$ 0.09
Manure Credit							\$ 148.60	\$ 0.63
Other Income							\$ 68.00	\$ 0.29
Total Gross Return							\$ 4,620.13	\$ 19.66

Variable Costs

Heifer Feed Cost	\$ 800.00	total cost				x 0.42	\$ 336.00	\$ 1.43
Cow Feed Cost	\$ 5.57	per head/day	x	365	days		\$ 2,034.32	\$ 8.66
Breeding Fees							\$ 72.00	\$ 0.31
Daily Labor	\$ 13.50	per hour	x	38.5	hours	=	\$ 519.75	\$ 2.21
Management Labor	\$ 25.00	per hour	x	10.5	hours	=	\$ 262.50	\$ 1.12
Milk Marketing & Hauling							\$ 81.00	\$ 0.34
Veterinary							\$ 134.00	\$ 0.57
Fuel & Oil							\$ 75.00	\$ 0.32
Utilities							\$ 72.00	\$ 0.31
Machinery, Facility/Equip. Repairs							\$ 159.00	\$ 0.68
Bedding							\$ 78.00	\$ 0.33
Custom Hire							\$ 77.00	\$ 0.33
Cash Interest Paid							\$ 99.00	\$ 0.42
Other variable costs							\$ 302.00	\$ 1.29
Total Variable Costs							\$ 4,301.57	\$ 18.30

Fixed Costs

Depreciation							\$ 206.00	\$ 0.88
Farm/Livestock Insurance							\$ 56.00	\$ 0.24
Opportunity Cost of Investment							\$ 256.22	\$ 1.09
Other fixed costs							\$ 122.00	\$ 0.52
Total Fixed Costs							\$ 640.22	\$ 2.72

Total Costs

Income Over Variable Costs							\$ 318.56	\$ 1.36
Income Over Total Costs							\$ (321.66)	\$ (1.37)

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K-State's Agricultural Economics Department annually publishes *Farm Management Guides* to estimate the current profitability of different agricultural enterprises. The format for these livestock budgets allows the user to change certain key inputs to cater the budget to their production situation. Environmental factors, management, operation size, local cash prices, and a variety of other situations makes budgeting to the entire state of Kansas difficult. While defaults in the spreadsheet are research-based estimates, users should enter their own prices and costs using the cells in **blue**. Base input and output prices populate each budget without reference to any specific time period or specific production period. Users are encouraged to update prices to best reflect their specific situation.

Three different sets of price forecasts are available in the spreadsheet. By clicking the dropdown menu at the top of the budget, a user can select "Current Prices", "One Year Out Prices", or "Five Year Out Prices". All price assumptions can be viewed in the *Prices* tab and be adjusted according to the user's own expectations and local market conditions. Only default milk, cattle, and feed prices differ when looking at different time horizons. Other costs will remain fixed.

The source of default estimates are noted in the explanations to follow, but most of the production costs are taken from The Center for Farm Financial Management "FINBIN" database (www.finbin.umn.edu). Values for the previous 10 years are regressed to predict a current year value using a time trend, also smoothing out year-to-year variation. Values that did not display a time trend were computed as an average over this time period.

This budget assumes all heifers are raised on-farm. See the "Cow Milking-Purchased Replacement budget" or "Replacement Heifers" budget to evaluate other scenarios.

Production Efficiency Measures

Milk Produced Per Cow: Average pounds of milk per cow per year. This has a HUGE effect on ending profitability, so should be adjusted to fit the operation. Default is roughly the FINBIN average and Kansas Farm Management Association (KFMA) dairy farm enterprise average.

Cull Cow Sales: Percentage of entire herd sold each year as culls. FINBIN farms average around 6% cow death loss or no sales value, so this makes up the difference in replacement turnover.

Calves Sold: Percentage of live, sellable calves. Note that this budget assumes you retain all replacement heifers. 4% death loss is the default on bull calf sales.

Cull Replacements Sold: Cull replacements sold as non-breeders.

Cull Yearlings Sold: Cull replacements sold as yearlings.

Replacement Heifer Death Loss: Percentage of calves/heifers normally lost.

Replacement Heifer Turnover: Amount of replacement heifers raised to freshening in relationship to the entire herd, listed as a percent. FINBIN typically displays a 34% turnover rate. Assumptions are that 50% of calves are born as heifers, 2% are culled as yearlings, 5% are culled as non-breeders, and 9% death loss is realized during the development period.

Returns

Milk Sales: Milk produced per cow multiplied by milk price.

Milk Premiums: Enter any volume, quality, or other premiums to be applied to pounds of milk produced not already captured in milk sales.

Calves Sold: Bull calf price multiplied by sales percentage.

Cull Cows, Replacements, and Yearlings Sold: Enter average cull weight to be multiplied by price and sales percentage.

Manure Credit: Assumes a value for nitrogen and phosphorus if sold or value to field in reduced fertilizer expense. Default is \$135 per cow and \$40 per heifer (multiplied by turnover rate).

Other Income: Patronage refunds, government program payments, etc., should be entered here.

Variable Costs

Heifer Feed Costs: Enter total dollar feed cost for the entire development of the heifer. Default is a regression of total feed cost per head in the FINBIN database in relation to corn, soybean, alfalfa, and milk price. Heifer feed cost is applied on a per-cow basis by taking total feed cost multiplied by the heifer turnover rate plus 1/2 the percentage of culls and heifer death loss.

Feed Cost: Enter dollar per head per day cost over the entire year (includes both milking and dry periods). Default is a regression of daily feed cost per head in the FINBIN database in relation to corn, soybean, alfalfa price, and total milk produced per cow.

Breeding Fees: Default is FINBIN value.

Labor: FINBIN average labor is just over 48 hours per cow (including replacement heifer development) with a total paid labor cost just near \$500 per cow. Unpaid Labor and Management is near \$250 per cow, which makes up the other portion of the 48 hours. These values will vary tremendously depending on the efficiency and level of technology in the operation.

Milk Marketing & Hauling: Default is FINBIN value.

Veterinary: Default is FINBIN value.

Fuel & Oil: Default is FINBIN value.

Utilities: Default is FINBIN value.

Machinery, Facility/Equip. Repairs: Default is FINBIN value.

Bedding: Default is FINBIN value.

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Variable Costs (continued)

Custom Hire: Default is FINBIN value for expenses related to manure hauling, hoof trimming, and other hired expenses.

Cash Interest Paid: Default is FINBIN value.

Other Variable Costs: FINBIN value for any "Dairy Supplies" referring to cleaning/chemicals/filters/etc. Enter other misc. items as needed.

Fixed Costs

Depreciation: Default is based on FINBIN values for buildings and machinery.

Farm/Livestock Insurance: Default is FINBIN value.

Opportunity Cost of Investment: This is not a cost listed in the FINBIN database, but typically the Kansas Farm Management Association (KFMA) has this near 5.5% of total costs for Kansas dairies.

Other Fixed Costs: Default is FINBIN value for building and equipment leases, taxes, and other fixed overhead. Add other fixed costs as needed.

**Note: FINBIN defaults are based on an average of 385 farms with a current average herd size of 171 cows (milking and dry) and average milk per cow of 22,627 pounds.*

Budget Assumptions

Default Dairy Prices			
	Current	One Year Out	Five Years Out
Corn (\$/bu)	\$ 3.30	\$ 3.75	\$ 3.40
Soybeans (\$/bu)	\$ 9.50	\$ 9.71	\$ 9.50
Dairy Alfalfa (\$/ton)	\$ 160.00	\$ 181.82	\$ 164.85
16% 100 pounds of feed (\$)	\$ 7.55	\$ 8.44	\$ 7.74
Milk:Feed Ratio	\$ 2.29	\$ 2.13	\$ 2.20
Heifer Total Feed Cost (\$)	\$ 800.00	\$ 860.00	\$ 813.00
Milk (\$/cwt)	\$ 17.30	\$ 18.00	\$ 17.05
Replacement Heifers (per hd)	\$ 1,450.00	\$ 1,550.00	\$ 1,342.00
Dairy Bull Calves (per hd)	\$ 140.00	\$ 181.00	\$ 123.00
Dairy Heifer Calves (per hd)	\$ 200.00	\$ 258.00	\$ 229.00
Dairy Cull cow (per cwt)	\$ 49.25	\$ 49.00	\$ 44.00
Cull Replacement Heifer (per cwt)	\$ 107.00	\$ 104.00	\$ 92.00
Cull Yearling Heifer (per cwt)	\$ 142.00	\$ 136.00	\$ 116.00

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