



## Production and Farm Management Report

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### ENTERPRISE BUDGETING: AN APPLICATION TO SAN LUIS VALLEY GRASS-FED CATTLE OPERATIONS

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- *Assessing the stage of production that secures the greatest returns is one possible outcome from budget planning.*
- *The San Luis Valley region has a comparative advantage at the cow-calf stage of production.*
- *Enterprise budgeting is a necessary step in production and market planning.*

Enterprise budgeting is one of the most commonly used production planning tools in agriculture, and budgets completed for representative farms provide nice baseline numbers for cost of production estimates. The following enterprise budget analysis was conducted in the San Luis Valley of Colorado and pertains to cattle operations using grass-fed methods of feeding herds, a sector that has few production cost baseline numbers for producers to use. The Microsoft Excel formatted budgets allows yearly operations to be broken down into cow-calf, winter, summer, and finishing stages.<sup>2</sup> Each stage provides revenues and costs output so that returns to the operation can be evaluated at each stage and production decisions can be made accordingly. The budgets at each stage build upon the data incorporated at previous stages. That is, even if data is

not updated at each stage, output will still be generated due to the continuity of the budgets.

Three separate budgets were created during the analysis conducted in the San Luis Valley: two budgets for individual operations concerned primarily with the cow-calf stage of production, and one budget representative of a typical grass-fed cattle operation that handles cattle through all stages. All budget data is assumed using historical yields and cost structures.

#### Building the Budget with Production Data

The budget template begins with the cow calf stage of production and allows the user to conform the budget to a particular operation. Herd size, death loss, replacement rate and weaning percentage can be altered to reflect the conditions of the operation being evaluated. Animals retained, average weight and operating interest all must be accounted for, and commodity price must be estimated. This can be done using historical yields or contract price if futures contracting is practiced. Data for future stages of production is carried over from the previous stage, but can be altered at the producers' discretion, for instance, if animals are purchased at a specific price.

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<sup>2</sup> Jeff Tranel created the template that produced the underlying budget structure.

The budgets also require cost structure to be analyzed. Expenses are broken down into feed, land, medical and breeding, supplies, marketing, machinery and equipment, labor, and non-cash. All expense categories are broken down into individual expenses and the total is calculated as a function of quantity and unit price. Both variable and fixed costs are accounted for and can be estimated from previous years' expenses.

Once data reflecting the enterprise under consideration is entered, the budgets provide a break down of revenues and expenses in a standardized form. Revenues for the herd are calculated based on the expected weight and price taking into account steers and heifers sold and retained, as well as cull cows and bulls. An expense summary provides a brief break down of expenses, followed by non-cash expenses and projected net receipts. All revenues, costs and receipts are listed on a per animal and per herd basis.

The resulting output is calculated for each of the four stages of production. Such output allows producers to analyze their operation at each stage and determine the most profitable stage to sell in. Profitability varies from one operation to the next such that one producer may find it beneficial to sell after cow-calving whereas his neighbor may choose to carry his herd through the finishing stage.

### **Cow-Calf Budgets**

As mentioned above, two of the three budgets generated for grass-fed operations in the San Luis Valley focus primarily on the cow-calf stage of production. Based on historical yields, both producers consider the cow-calf stage (ends at weaning) to be the most profitable stage in this region of the state. Both operations contain small herd sizes with one herd of 87 and the other of 50 head. Budgets were created to reflect the revenues and expense structure for each operation resulting with a net profit of \$97.41 per head for the 87 head operation and \$102.46 per head for the herd of 50. Both producers felt the expected returns are reflective of previous years' profits and reinforced their decisions to be strictly cow-calf producers. This is based on the fact that profits for this stage of production were expected to be highest out of the four stages analyzed given their individual situations.

The case of the larger herd size having a lower per animal return is counterintuitive to the economies of scale

argument. We posit that this finding is a result of the 87 head operation growing its own feed versus the 50 head operation that purchases its feed. In this case the need for machinery and other feed production resources make the overhead costs of the bigger herd greater, resulting in lower direct economic returns. However, enterprise budget analysis does not let us determine whether the investment in larger capital assets may have broader or longer-term economic benefits (due to expected capital gains or tax benefits).

### **Representative Budget**

The third budget generated is reflective of a typical grass-fed cattle operation in the Valley. Data for this budget was determined through the input and agreement of five separate producers, all using grass-fed techniques to feed their herds. Revenues and expenses were assumed using historical averages amongst the producers and data was input for cow-calf, summer, and winter stages. Data for the finishing stage is implied from the previous ones. Resulting net returns per animal were positive in both the cow-calf and summer stages, and negative for winter and finishing stages. Net returns per animal in the herd are highest during the summer stage at \$304.29.

The purpose of this budget is to be representative of a typical grass-fed enterprise in the San Luis Valley of Colorado. Individual operations will consequently vary from the assumed data. The representative budget provides an example of enterprise budgeting pertinent to grass-fed operations. By incorporating firm specific data and analyzing the output for the various stages, producers can base production decisions on budget results.

### **Conclusions**

Enterprise budgets act as a decision tool for farm owners. All producers apply budgeting concepts in one form or another when making production decisions, even if the budgeting process is more loosely conducted. The enterprise budgets used in this analysis puts a standardized format to the "back of the envelope" calculations and intuition used by many production managers. Such budgeting is also the necessary first step in developing a marketing plan, as costs of production are an essential element to product positioning and pricing strategies.

The budget template used in this analysis can be applied to a variety of production techniques. The focus here is on grass-fed operations due to the relative scarcity of information about this production protocol at a time when continued consumer interest suggests

some differentiated marketing potential for producers. Producers are encouraged to use similar budgeting techniques or customize the baseline budget presented here to analyze the profitability of their operation and production methods.

### 50 Head Operation

#### Gross Revenues

Description	Head	Pay Weight (lbs)	Price (\$/cwt )	Revenues		
				(\$/hd)	(\$/cow)	(\$/herd)
Steers	21	600	105.00	630.00	264.60	13,230
Heifers	13	550	98.00	539.00	140.14	7,007
Retained Steers	0	600	105.00	630.00	-	-
Retained Heifers	0	550	98.00	539.00	-	-
Cull Cows	12	1,025	39.20	401.80	96.43	4,822
Cull Bulls	1	1,645	45.00	740.25	14.81	740
<b>Total</b>					<b>515.98</b>	<b>25,799</b>

#### Expenses Summary

	Cost	
	\$/cow	\$/herd
Purchased Feed	189.04	9,452
Pasture Rent	15.00	750
Land	60.90	3,045
Livestock Medical and Breeding	24.35	1,218
Livestock Supplies	13.74	687
Marketing	24.50	1,225
Machinery and Equipment	15.00	750
Labor	-	-
<b>Subtotal</b>	<b>342.53</b>	<b>17,127</b>
Operating Interest	11.99	599
Other Interest	13.00	650
<b>Total Operating Expenses</b>	<b>367.52</b>	<b>18,376</b>

<b>Projected Net Cash Receipts From Operations</b>	<b>148.46</b>	<b>7,423</b>
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Non-Cash Expenses	46.00	2,300
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<b>Projected Net Receipts</b>	<b>\$ 102.46</b>	<b>\$ 5,123</b>
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### 87 Head Operation

#### Gross Revenues

Description	Head	Pay Weight (lbs)	Price (\$/cwt )	Revenues		
				(\$/hd)	(\$/cow)	(\$/herd)
Steers	33	600	86.00	516.00	195.72	17,028
Heifers	22	550	86.00	473.00	117.16	10,193
Retained Steers	0	600	86.00	516.00	-	-
Retained Heifers	2	550	86.00	473.00	10.87	946
Cull Cows	13	1,025	39.20	401.80	60.04	5,223
Cull Bulls	1	1,645	45.00	740.25	8.51	740
<b>Total</b>					<b>392.31</b>	<b>34,131</b>

#### Expenses Summary

	Cost	
	\$/cow	\$/herd
Purchased Feed	25.20	2,192
Pasture Rent	11.54	1,004
Land	54.37	4,730
Livestock Medical and Breeding	-	-
Livestock Supplies	27.62	2,403
Marketing	-	-
Machinery and Equipment	83.98	7,306
Labor	-	-
<b>Subtotal</b>	<b>202.71</b>	<b>17,636</b>
Operating Interest	7.09	617
Other Interest	27.62	2,403
<b>Total Operating Expenses</b>	<b>237.43</b>	<b>20,656</b>

<b>Projected Net Cash Receipts From Operations</b>	<b>154.88</b>	<b>13,475</b>
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Non-Cash Expenses	57.47	5,000
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<b>Projected Net Receipts</b>	<b>\$ 97.41</b>	<b>\$ 8,475</b>
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**Cattle Feeding**  
**Summary of Potential Profits for 4 Stages of Production**

	Cow-Calf (Cows)	Winter	Summer	Finishing
		(Steers & Heifers )		
<b>Beginning Herd Size</b>	<b>400</b>	<b>130</b>	<b>127</b>	<b>125</b>
<b>Gross Revenues</b> (if animals sold at each stage)	<b>203,362</b>	<b>109,119</b>	<b>227,774</b>	<b>152,228</b>
<b>Cash Operating Expenses</b>				
Purchased Animals	0	87,880	109,119	227,774
Purchased Feed	82,425	20,017	3,196	623
Pasture Rent	2,055	0	6,972	14,760
Land	9,648	0	125	605
Livestock Medical & Breeding	8,000	650	0	1,500
Other Livestock	5,496	1,500	2,500	5,600
Other General		1,500	2,500	4,400
Marketing	3,106	0	62,500	520
Machinery & Equipment	8,100	0	0	0
Labor	0	0	0	1,200
Interest	22,615	2,158	2,217	4,547
<b>Total Cash Operating Expenses</b>	<b>141,445</b>	<b>113,705</b>	<b>189,128</b>	<b>261,529</b>
<b>Net Cash Profits</b>	<b>61,917</b>	<b>(4,586)</b>	<b>38,645</b>	<b>(109,301)</b>
Non-Cash Expenses	12,000	310	0	310
<b>Net Returns to Operator's Labor, Mgmt, &amp;</b>	<b>49,917</b>	<b>(4,896)</b>	<b>38,645</b>	<b>(109,611)</b>
Net Returns Per Cow in Breeding Herd	124.79	(12.24)	96.61	(274.03)
Net Returns Per Animal in Herd at each Stage	124.79	(37.67)	304.29	(876.89)