

An enterprise analysis is an in-depth evaluation of the profitability of a specific enterprise, in this instance the cow-calf enterprise, separate from the rest of the business or farm. Profitability is dependent on both the production or performance aspects and financial factors, such as costs, associated with the enterprise. In order to analyze a specific enterprise, good records of both production and financial factors are essential.

In the modern business environment of agriculture, survival of the individual farm or ranch depends on constant evaluation and improved efficiency in all aspects of the operation.

From an industry perspective, efficiency is an important component of maintaining or improving the competitive position of beef products in the marketplace. The purposes of this bulletin are to highlight the importance of cow-calf enterprise analysis and provide an overview of the records needed and implementation of a complete cow-calf enterprise analysis.

## Importance

It is not easy to determine what an individual or farm family earned for the resources contributed to the beef cow-calf operation. Overlapping production and fiscal years and resources drawn from other enterprises on the farm make the analysis complex. Capital investments, such as machinery, are normally used by more than one enterprise, further complicating the analysis.

In addition, the job of the cow-calf enterprise ends at weaning. Therefore, this enterprise needs to be analyzed separately from any backgrounding or feeding of the weaned calves that may be done on the same farm.

# Improving Cow-Calf Profitability through Enterprise Analysis

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Returns above variable costs are needed to maintain facilities, make capital improvements, expand the enterprise, and provide income for family living expenses. Negative returns can result in large equity losses in a short period of time.

Table 1 presents performance, cost, and revenue data from a sample of herds across the United States from 1991 to 1994. The data reveal a wide variation between herds, which suggests there is a lot of room for improvement in net income in many of them. Similar findings are revealed when looking at data from individual states. In order to remain competitive

and survive over time, individual producers should strive to be low cost per pound of weaned-calf producers.

## Factors Affecting Profitability

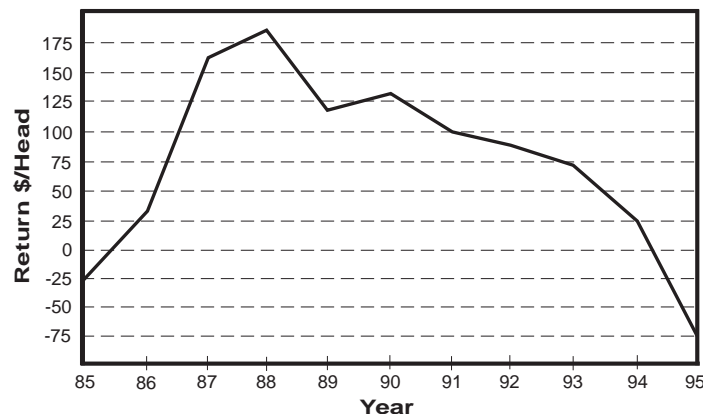
A number of primary factors have been identified that influence the profitability of a cow-calf operation:

- Production costs.
- Percent of cows weaning a calf.
- Weaning weight of calves.
- Prices received for calves.

Recognizing these difficulties, it is still imperative that producers analyze the profitability of the cow-calf enterprise to ensure long-term survival.

Figure 1 provides an illustration of the effects of the cattle-price cycle on profitability in cow-calf production. Though returns over variable costs have at times been significantly positive for periods of several years, sustained periods of negative average returns can result in economic stress for the individual farm or ranch.

Figure 1. Return over Variable Cost per Head, Kansas Beef Cow-Calf Production



Source: Kansas Farm Management Association Annual Enterprise Analysis Report, various issues.

**Table 1. Cow-calf Performance Measures Ranked by Net Income Quartiles (1991-1994)\***

Performance Measure	Quartile			
	Top 25%	Second	Third	Bottom 25%
Weaning percent	85	86	83	82
Weaning weight	538	507	510	493
Pounds weaned per exposed female	460	437	422	406
Raised and purchased feed (\$ per cow)	80.94	97.64	94.99	145.59
Grazing cost (\$ per cow)	68.26	77.13	76.86	106.87
Net income (\$ per cow)				
Financial	188.42	89.40	20.63	-109.10
Economic	59.43	-34.68	-73.31	-203.37
Cost of weaned calf (\$ per cwt.)				
Financial	52.78	69.48	82.23	114.88
Economic	78.83	98.25	105.49	140.00

\* McGrann, James and John Parker. *Cow-calf SPA Shows Great Opportunities for Improvements*. SPA-10 in IRM-SPA Handbook, Texas Agricultural Extension Service, July 1995.

While overall calf prices are determined by forces largely outside the control of the individual producer, some elements of price can be managed. Genetic selection, sorting, timing, and marketing methods can all influence the price received for calves.

Other management practices such as retained ownership may offer some opportunity for increased profits. These programs should, however, be evaluated as a separate enterprise and should not be included in an analysis of the cow-calf enterprise.

Additional Extension publications such as MF-2142, *Improving the Value of Your Calf Crop*, are available to help producers evaluate alternatives that may enhance the revenue from the calves they produce. The remainder of this bulletin addresses other factors that contribute to profitability.

An analysis of production cost, combined with important performance measures, can assist management in several ways. First, specific production and financial measures from a particular operation can be compared with benchmarks. These benchmarks can be from national, regional, or state averages. Personal targets and goals or previous years' records from the same operation also can provide benchmarks. These comparisons help

identify areas of possible concern or areas of the operation with the potential for improvement.

Progress toward goals can be documented through enterprise analysis. Terms such as Standardized Performance Analysis and Integrated Resource Management are often used to refer to cow-calf enterprise analysis or to specific computer software designed for this purpose. No matter what it is called, there is widespread agreement that cow-calf enterprise analysis is important.

Comparisons and management implications drawn from the analysis are only valid if standardized measures are used for comparison. The producer needs to be sure, for example, the definition used for weaning percentage in the individual analysis is comparable to the definition used in the comparison benchmark.

Fortunately for cow-calf producers, standardized production and financial measurement guidelines have been developed by the National Cattleman's Beef Association and the National Integrated Resource Management Coordinating Committee. Guidelines dictate the analysis be based on the fiscal year the calves are weaned, using production inventories and performance data from the associated production

cycle. Depending on calving and weaning dates, the analysis for one fiscal year may involve some production records from two or three calendar years.

The reproduction and production standards are based on females exposed or intended to be bred. There are four primary reproductive measures:

- percent calf crop,
- pregnancy percentage,
- calving percentage, and
- calf death loss.

Three primary production standards exist:

- weaning weights,
- weaning age, and
- pounds weaned per exposed female.

The financial position and economic performance standards are measured on a per-cow or per-hundredweight weaned basis. There are primary financial measures that should be obtained from the enterprise analysis:

- capital investment per cow,
- debt per cow,
- the debt-to-equity relationship,
- the value of feeds fed,
- grazing costs,
- nonfeed costs,
- capital costs,
- income or return on assets, and
- unit costs of production (cost per pound of weaned calf).

It is important to understand the difference between cash flow, financial, and economic costs and returns. Cash flow measures simply summarize cash costs and returns. Financial measures are inventory-adjusted cash costs and returns. Economic measures include all financial factors plus the opportunity costs of all owned capital used in the cow-calf operation.

Obviously, the first step toward improving the efficiency and profitability of the individual cow-calf enterprise is to have a thorough understanding of both the production and economic facts associated with it. It is important to record production information and calculate both performance factors and costs of

production. The next step is to closely scrutinize these factors and form a plan to deal with areas that need improvement.

Total production costs, weaning percentages, and weaning weights can be closely related. Arbitrarily cutting costs in a critical area may negatively affect weaning percentages or weights. Conversely, focusing too much attention on weaning weights may significantly increase costs. For long-term profitability, it is important to determine the appropriate balance between these various factors for each individual operation.

## Records Needed

Basic herd inventory records at various times during the calf production cycle are necessary. It is useful, but not essential, to break the herd into age groups. Several herd inventory records are needed for the analysis:

- the number of females exposed to the bull or expected to be bred,
- the number of pregnant females sold or purchased,
- the number of abortions observed,
- the number of pregnant female deaths,
- the number of open females at calving time,
- the number of sets of twins born,
- purchases or sales of pairs,
- purchases of foster calves, and
- calf deaths prior to weaning.

Basic management information also is important for the analysis. Management information of value includes the following:

- dates that bulls are placed with and removed from the herd.
- calving dates,
- weaning dates, and
- weaning weights.

Determining the annual cost of cow maintenance is critical but requires some detailed records. Feed costs account for the major portion of annual costs, so considerable attention should be focused in this area. Accurate records of all grazing resources

employed should be maintained. This includes not only summer pastures, but also summer and winter annuals and crop residues. For farm-raised forages and grains, a fair market value should be assigned to each commodity, not the actual costs of production. Specific records should be kept:

- dates, acres, number of head, and rental and other costs associated with all grazing resources used by the cow herd on an annual basis.
- quantities of both purchased and harvested feeds used by the cow-calf enterprise.

Other expenses such as repairs, interest, fuel, veterinary expenses, and so forth need to be assigned to the cow-calf enterprise. The schedule F provides a starting point from which allocations to various enterprises can be made. It also is helpful to track operator and family labor employed.

A record of breeding stock and other capital purchases allocated to the cow-calf enterprise also is needed. Income assigned to the cow herd includes calf sales, the transfer of calves into a backgrounding, finishing, or breeding stock retention program, and the sale of cull animals. Detailed records of these important items are derived from the following documents:

- An income statement listing all income and expenses associated with the cow-calf enterprise.
- Both a beginning and an ending balance sheet for the fiscal year being evaluated.
- A record of calves transferred into backgrounding, growing, or breeding stock retention programs.

The *Kansas State University Cow-Calf Enterprise Field Record Book* provides a convenient format for maintaining the records necessary for enterprise analysis. Other record books and both production and financial record-keeping computer software provide additional alternatives.

## Analyzing The Records

A significant amount of insight regarding the efficiency of the cow-calf enterprise can be obtained from simply maintaining and casually observing records of the enterprise. Further analysis that combines both the production records and the financial records using guidelines established by the Integrated Resource Coordinating Task Force can be used to help identify areas for potential efficiency gains. Computer software has been designed specifically for the purpose of helping to gather and analyze the facts surrounding a cow-calf enterprise.

The concise reports generated by the software provide a clear picture of the overall production and financial aspects of the cow-calf enterprise. Tables 2 and 3 provide examples of the economic summary and the production summary reports generated by the KSU Cow-Calf IRM software. Additional help is available from several sources including the Cooperative Extension Service.

Reports generated in addition to the economic and production-highlight summaries include a detailed production summary, a detailed feed-use summary, and an income statement for the cow-calf enterprise. Producers are encouraged to take advantage of the assistance offered by specialists with expertise in cow-calf enterprise analysis. Several sources, including the Cooperative Extension Service, can provide this assistance.

## The Next Step

After gathering, summarizing, and analyzing the production and economic facts associated with their particular cow herd, producers need to use this information to make management changes that will help lower the cost of producing a pound of weaned calf.

Producers may want to assemble a team of outside experts to help synthesize the production and financial information and formulate an action

plan. Recommended team members may include county agents, bankers, animal scientists, farm management specialists, veterinarians, range scientists, and perhaps neighbors or other cow-calf producers. This team approach leads to scientifically based management recommendations that take into consideration all aspects of the cow-calf enterprise.

The ultimate goal is to develop a plan to increase profitability through increased efficiency. The Kansas State University Integrated Resource Management for Cow-Calf Producers program is designed to help accomplish this goal. For more information, contact a county Extension agent.

**Table 2. Sample Cow-calf Enterprise Economic Summary**

	Economic \$/Cow	Cash Flow \$/Cow
<b>Income:</b>		
Inventory adjustment	-8.70	xxx
Calf sales and transfers	533.13	533.13
Asset sales (culls, equipment)	xxx	44.02
Gain or loss on assets	-2.50	xxx
<b>Total</b>	<b>521.93</b>	<b>533.13</b>
<b>Variable Costs:</b>		
Labor hired	0.00	0.00
Repairs and maintenance	26.61	26.61
Interest paid	33.26	33.26
Purchased/harvested feed	84.15	84.15
Grazing costs	159.89	159.89
Marketing	10.37	10.37
Breeding	0.00	0.00
Taxes and insurance	4.57	4.57
Fuel, oil, and utilities	11.22	11.22
Veterinary and medicine	14.13	14.13
Miscellaneous	0.00	0.00
<b>Total</b>	<b>344.20</b>	<b>344.20</b>
<b>Return Above Variable Costs</b>	<b>177.74</b>	<b>188.93</b>
<b>Fixed Costs:</b>		
Non-animal depreciation	0.45	xxx
Interest charge	0.20	xxx
Principal payments	xxx	73.91
<b>Total</b>	<b>0.65</b>	<b>73.91</b>
<b>Total Costs</b>	<b>344.85</b>	<b>418.11</b>
<b>Net Return to Labor and Management</b>	<b>177.09</b>	<b>115.02</b>
<b>Breakeven and Sales Prices:</b>		
Feed cost per hundredweight	50.98	50.98
Variable cost per hundredweight	71.91	71.91
Total cost per hundredweight	72.04	87.35
Gross return per hundredweight	109.04	111.38
Investment per Cow	664.06	
Debt per Cow	13.54	
Asset Turnover Ratio .....	0.87	
Return on Investment (percent) .....	-11.13	

**Table 3. Sample Cow-calf Enterprise Production Highlight Summary**

<b>Reproductive Performance Measures (percent):</b>		<b>Production Performance Measures (pounds):</b>	
Percent of exposed females open	5.7	Steer weaning weights	519.9
Calving percentage	94.3	Heifer weaning weights	496.2
Calf-death loss, based on exposed females	5.7	Average weaning weights	507.4
Calf crop or weaning percentage	88.7	Pounds weaned per exposed female	478.7
Female replacement rate	9.4	<b>Other Information:</b>	
<b>Calving Distribution (cumulative percent):</b>		Average age at weaning (months)	6.3
Calves born during first 21 days	20.8	Number of exposed females	53
Calves born during first 42 days	50.9		
Calves born during first 63 days	94.3		

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