

ECONOMIC CONSIDERATIONS FOR THE COW HERD

C.P. Mathis, C.T. Braden, R.D. Rhoades, and K.C. McCuiston

King Ranch[®] Institute for Ranch Management, Texas A&M University-Kingsville

Introduction

Cow-calf producers are continually challenged to maintain the profitability of their operations despite the dynamic nature of weather patterns, cattle markets, and the cost of input commodities and services. Good managers make a multitude of small decisions to collectively keep costs low relative to the value of the weaned calves they produce. However, the real separation between “good” and “excellent” management is that the very best managers also understand and find leverage in the production system that have long-standing systematic benefit to the operation. Those producers with a clear view of the financial position of the ranch and the drivers of net income and return on assets will be best prepared to make the high leverage decisions with long-term benefit to the operation.

This paper discusses the impact of key cow herd performance criteria on the net income of cow-calf enterprises, and is intended to help managers prioritize the areas in their unique operation that will likely yield the largest improvement in profitability if altered. Standardized Performance Analysis (SPA) benchmark information is used as a basis to estimate the impact of some management decisions on key cow herd performance criteria and net income.

What is Driving Net Income?

Benchmark data from the SPA database offers some historical insight into the key performance and financial measures affecting profit of cow-calf enterprises. It is also noteworthy that current SPA benchmark information only offers regional information from the southwest (TX, OK, and NM; Stan Bevers, personal communication). Table 1 is the Southwest SPA Key measures summary for 44 herds from 2008 to 2013. These herds ranged in size from 44 to 2,963 head and represent 17,196 cow years. Calf prices in 2013 and 2014 have reached exceptionally high values, and these high prices are not reflected in the dataset. In fact, the average weaned calf price at 507 pounds was only \$119/cwt; and is much lower than current prices. This does not discount the information for those interested in maximizing profit because drivers of profit remain the same regardless of the actual price of calves. Average net income during this period was below breakeven (-\$65/cow exposed).

It is discouraging that operations in the benchmark dataset were not profitable on average, but upon closer evaluation there are still a portion of the operations that were profitable. In fact, some cow-calf enterprises were highly profitable (figure 1). Production systems can vary greatly; however, those herds in the top net income quartile (average profit = \$159/cow exposed) generated not only greater gross income from calf sales relative to the other three-fourths of the 44 herds (figure 2), but also had the lowest production costs. The bottom line is that highly

profitable herds typically return more income and have lower costs. Producers interested in being among the top net income quartile are encouraged to continuously ask themselves:

- 1) What are the most profitable herds doing that makes them different?
- 2) How can I improve profit the most in my operation?

A Closer Look at Revenue

The two sources of revenue for cow-calf operations are calf sales and cull cow and bull sales, with calf sales being the most important. Calf income is a function of quantity (number sold), quality (genetics and condition), and marketing. Table 2 shows calf weaning measures and revenues by net income quartile to provide insight into some of the differences that exist among profitable and unprofitable operations. Weaning percentage does not show an upward linear trend parallel to rising net income. This does not mean that weaning percentage is unimportant, but emphasizes that top net income quartile operations have a balance between cost and performance that maximize net income. The top quartile does not have the highest weaning percentage, but these operations have weaned the largest calves by 58 pounds over the second highest profit quartile. The advantage in weaning weight primarily results from calves in the top quartile being approximately 20 days older at weaning (data not shown). Although not quantifiable from SPA data, it is likely that calves from the top quartile operations also have an additional advantage in genetics for growth and/or end product value.

The overall average weaning rate and weight were 83.8 percent and 507 pounds, respectively (table 2). Using these values as a foundation, and assuming that 507-pound calves are worth \$119/cwt (average SPA price from 2008-2012), the value of a single percentage unit change in weaning rate is about \$6/cow exposed (calculation: $507 \text{ lbs} * 1\% * \$119/\text{cwt} = \$6.03$). If a more current 507-pound calf price of \$200/cwt is assumed, a single unit increase in weaning percentage raises profit by more than \$10/cow exposed. Therefore, any management change that cost less than \$10/cow exposed to implement and increases weaning rate by one percentage unit or more will increase net income.

A Closer Look at Expenses

Total cost before non-calf revenue adjustment averaged \$608/cow exposed (table 1), but when evaluated by net income quartile, the quartile average ranged \$451 to \$700. The top quartile producers simply wean and market more pounds of calf/cow exposed at a much lower cost than the less profitable operations. Figure 3 shows that over half of the expenses to a cow-calf enterprise can be categorized as depreciation, labor, or feed. In most cow-calf enterprises these three expense categories offer opportunity for high leverage change to the production system that can yield significant financial improvement. Other expenses like repairs and maintenance, fertilizer, fuel, leases, and veterinary services are important when taken together, but independently are generally not high leverage expenses.

Feed and labor expenses are typically well understood, but depreciation is an expense often more difficult to grasp. The result is a considerable amount of unaccounted expense in livestock, equipment, and infrastructure depreciation. Managers should be aware of the effect depreciation of livestock, equipment, and infrastructure has on the long term equity of an operation. The ways to decrease livestock depreciation are: reducing purchase price of breeding stock, increasing salvage values, or increasing longevity of cows and bulls. Reducing equipment depreciation may be accomplished by sharing, renting, leasing, or contracting equipment. However, each of these options has some tradeoffs in convenience and control. Unlike livestock depreciation, which is a direct cost, the expense of equipment, buildings, and fences depreciation is an indirect or overhead cost. While capital purchases and improvements may have the potential to improve efficiency and production, the increase of the associated depreciation expense may offset the gain in efficiency from the improvement. The most profitable operations generally find ways to reduce this depreciation burden as much as possible.

Putting the Performance and Financial Pieces Together

A cow calf enterprise is a complex biological system where inputs and outputs are interconnected. Managers interested in maximizing profit are encouraged to focus on optimizing weaning rate and weaning weight, as well as feed, labor, and depreciation expenses. However, there is no silver bullet or prescription that is most effective at accomplishing the perfect balance because of the vast differences in resources and goals from one ranching operation to the next. The key is to evaluate potential changes based on unit cost of production. This measure will merge inputs and outputs into a single value. In reality, only a small portion of cow-calf enterprises have an accounting and performance measurement system in place to accurately calculate unit cost of production. Implementation of a managerial accounting system should be the initial step to improving profit because a clear picture of the current financial status of the operation is needed to make the best business decisions for the future.

It will take many small decisions across all facets of the business to keep cost low, yet still achieve performance goals. However, in most systems there are a few high-leverage interventions that can make a big impact. These changes will not be the same on all operations, but all managers should seek to find these areas in the operation that if changed could yield dramatic improvement. Table 3 lists examples of changes that may have a significant long-standing benefit to an operation. These interventions are included as examples only, and are not intended to be generalized recommendations for all operations. Notice that labor, depreciation, and pounds weaned are all affected in almost every intervention. A number of other examples could also be included, especially those that affect genetic makeup of the cowherd, which is always a long-standing change.

Cash Flow. Without minimizing the importance of previously discussed financial principles, operating capital is essential. A yearly financial plan with projected monthly cash flows adjusted according to operational plans is invaluable in preventing un-expected asset

liquidation out of necessity. Not being able to service short-term liabilities can lead to the liquidation of revenue producing assets, resulting in long-term reduced profit potential. While the value of cows liquidated today is capitalized on, the value of future production is lost. The importance of not liquidating assets in order to operate cannot be over emphasized.

Conclusions

The most profitable cow-calf operations are efficient, generally weaning the most pounds of calf per cow exposed with the lowest breakeven. Most importantly, these operations yield the greatest return on assets. Success in the cattle industry does not happen on accident. Decision makers at the most profitable operations have built production and marketing systems that, most importantly minimize labor, feed, and depreciation expenses relative to weaned calf value. Producers interested in improving the profitability of their cow-calf operation are encouraged to utilize a managerial accounting system that maintains a clear picture of the operation financials and allows measurement of unit cost of production. Furthermore, managers should seek practical, high leverage alterations to the production system with a keen focus on optimizing weaning rate and weaning weight, as well as feed, labor, and depreciation expenses.

Table 1. Southwest Cow-Calf SPA Key Measures Summary

States:	New Mexico, Oklahoma, Texas	Herd Sizes:	49 to 2,963 head
Years:	2008 through 2012	Total Cows:	17,196 head
Number of Herds:	44 herds		

	<i>Average</i>
<i>Herd Related Measures</i>	
Pregnancy percentage	90
Calving percentage	86
Calving death loss based on exposed females	3.0
Calf crop or weaning percentage	83
Average weaning weight, lbs.	507
Pounds weaned per exposed female	424
Weaned calf pay weight price - weighted average	119
<i>Financial Performance Measures</i>	
	---\$---
Raised/Purchased Feed Cost per cow	165
Grazing Cost per cow	92
Total Cost Before Noncalf Revenue Adjustment per cow	608
Total Cost Noncalf Revenue Adjusted per cow (BREAKEVEN)	565
Total Cost Noncalf Revenue Adjusted per cwt - Unit Cost	139
Net Income After Withdrawals per cow	-65
Net Income After Withdrawals per cwt	-19
Total Investment per Breeding Cow – cost basis	3,214
Return on Assets – cost basis	-0.26 %

Figure 1. Profitability of Southwest Herds Grouped in Quartiles by Net Income
(44 Herds; 2008-2012 SPA Data)

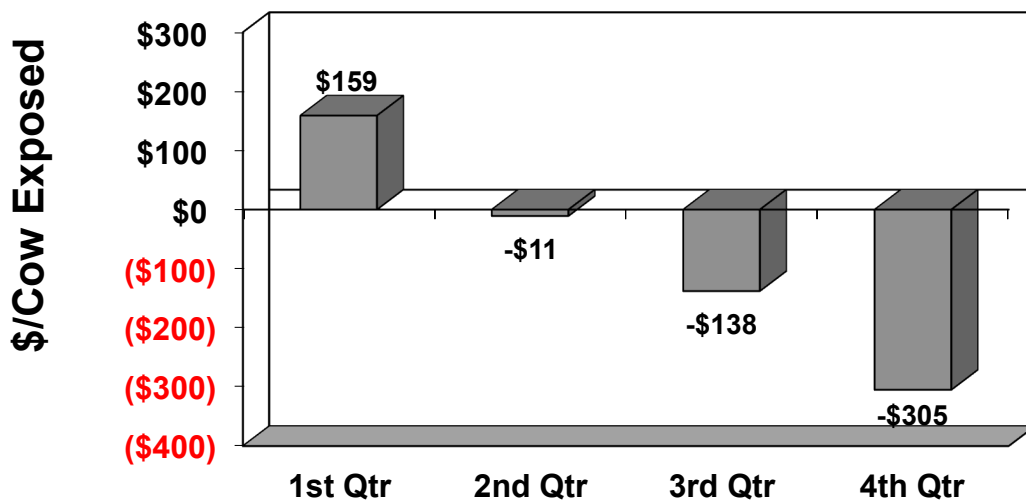


Figure 2. Breakeven and Calf Income of Southwest Herds Grouped in Quartiles by Net Income
(44 Herds; 2008-2012 SPA Data)

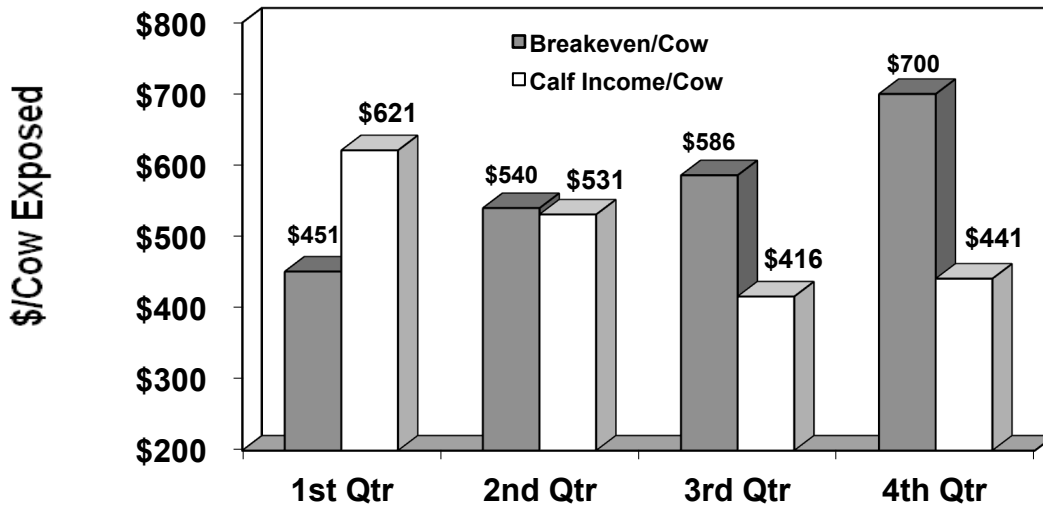


Table 2. Calf weaning measures and revenues by net income quartile.

	Net Income Quartile			
	1 st	2 nd	3 rd	4 th
Weaning Percentage	83.8	80.3	83.8	85.2
Average Weaning Weight, lb	562	504	455	494
Calf Price, \$/cwt	131	133	110	103
Average Calf Value, \$	736	670	501	508
Calf Revenue/Cow Exposed, \$	617	538	420	434

Source: SPA 2008-2012

Figure 3. Expense Category contribution to total expenses per cow exposed from the Southwest SPA database in 2008 to 2012 production years.

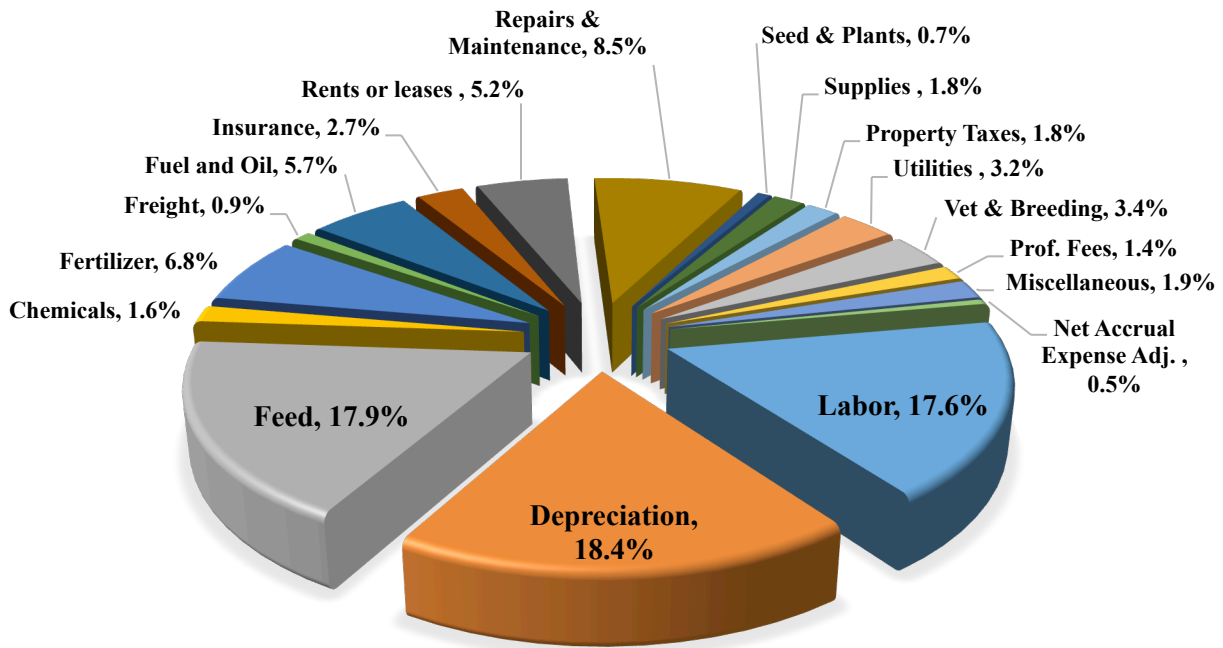


Table 3. Examples of potentially high leverage interventions with significant economic consequences.

Intervention^a	Potential Impact on the System
Implement Managerial Accounting System	(+) ↑ information to make decisions across all facets of the operation
	(-) ↑ short term cost for professional services
Purchase bred replacement females instead of raising replacements	(+) ↓ labor needed for calving
	(+) ↑ weaning weight with terminal system
	(+) ↑ total cows by 5 – 8% by reducing forage needed for heifer development
	(-) ↑ depreciation
Contract Haying/Farming	(+) ↓ labor
	(+) ↓ equipment depreciation
	(+) ↓ equipment repairs, maintenance, fuel
	(-) ↑ service cost
	(-) ↓ control of farming/haying activities
Implement Crossbreeding System	(+) ↑ reproductive performance
	(+) ↑ cow longevity
	(+) ↓ number of replacements developed annually
	(+) ↑ calf age and weight at weaning
	(-) ↑ complexity of the production system

^aInterventions are intended as examples, not blanket recommendations.