Key Drivers of Cowherd Profitability

C.P. Mathis and R.V. Machen

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 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 profitability.

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 shows a key measures summary for 32 herds representing more than 30,000 cow years from 2012 to 2016. Average weaned calf price at 557 pounds was $197/cwt; and is much higher 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 revenue during this period was almost $80 above the $878 average breakeven per cow exposed. However, not all herds in the dataset were profitable. In 2014 and 2015 the U. S. cattle market was exceptional, significantly inflating the average net income per cow exposed during this benchmark time period of 2012 through 2016. Nonetheless, there is a range in average profitability per cow exposed of several hundred dollars across the cowherds represented. The most profitable herds simply generate more net income because they receive more gross income from calf and cull sales, and they maintained lower production 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 differen2) 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 and weight of calves sold), quality (genetics and condition), and marketing. The overall average weaning rate and weight were 84 percent and 557 pounds, respectively. Using these values as a foundation, and assuming that 557-pound calves are worth $197/cwt (average SPA price from 2012-2016), the value of a single percentage unit change in weaning rate is about $11/cow exposed (calculation: 557 lb. * 1% * $197/cwt = $10.97). If a more current 557-pound calf price of $165/cwt is assumed, a single unit increase in weaning percentage raises profit by a little more than $9/cow exposed. Simply put, a management change that cost less than $9/cow exposed to implement and increases weaning rate by one percentage unit or more will increase net income if all other factors are constant.

A Closer Look at Expenses

Total cost before non-calf revenue adjustment averaged $952/cow exposed. The most profitable producers wean and market more pounds of calf/cow exposed at a much lower cost than the less profitable operations. Since 2003, the average total cost (breakeven) per cow exposed has increased substantially, as has the variation from year to year (Figure 1). A closer look at the expenses contributing to the breakeven (Figure 2) reveals 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.

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, which is cost/cwt calf produced. 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.

Also important to making management decisions that sustainably increase net income is the understanding of the relationship between variable cost, fixed cost, and producing cow numbers. Fixed costs, or overhead, are present regardless of the number of producing cows on the ranch. These include depreciation on equipment and buildings, property taxes, interest payments, etc. For most established cow-calf operations, labor is considered a fixed cost as well. Variable costs change with the level of production or number of cows. These include purchased feed, freight, medicine, veterinary services, etc. Fixed cost generally comprises 55 to 75% of total cost to a cow-calf enterprise. Generally the more producing cows in the operation, the lower the fixed cost per cow. Maximizing producing cow numbers within the confines of excellent natural resource stewardship typically yields the greatest net income.

Consider a 100-cow operation that generates $1,050/cow in revenue and has $1,000/cow in expenses. The operation thus has a net income per cow of $50, and nets $5,000/year (100 cows * $50 net income/cow = $5,000). If this enterprise has $600/cow (60%) in fixed cost and $400/cow in variable cost, then how much net income would the enterprise make if there were 101 cows (an addition of 1 cow)? The answer is an extra $650. In this example, 100 cows produces $5,000 profit/year; while 101 cows produces $5,650/year. Since the fixed costs of the operation do not change with the number of cows, the contribution of the additional cow to net income is revenue minus variable costs; which is $1,050 revenue – $400 variable cost = $650. The revenue generated by a cow above variable cost is called "Contribution Margin." Understanding contribution margin is key to decision making that drives profitability.

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 by 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; and they keep a watchful eye on maintaining cow numbers over which fixed costs are spread. 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. Because of the wide variation in resources, environment, and goals from one ranch to the next, informed decision making is the best tool for increasing profit.

Table 1. Cow-Calf SPA Key Measures Summary
States: New Mexico, Oklahoma, Texas Years: 2012 through 2016 Number of Herds: 32 herds Total Cows: 30,023 head

	Average
Herd Related Measures	
Pregnancy percentage	89
Calving percentage	87
Calving death loss based on exposed females	3.0
Calf crop or weaning percentage*	84
Average weaning weight, lbs.	557
Pounds weaned per exposed female	468
Weaned calf pay weight price - weighted average, $/cwt	197
Financial Performance Measures	***----$----***
Raised/Purchased Feed Cost per cow	258
Grazing Cost per cow	124
Total Cost Before Non-calf Revenue Adjustment per cow	952
Total Cost Non-calf Revenue Adjusted per cow (BREAKEVEN)	**878**
Total Cost Non-calf Revenue Adjusted per cwt - Unit Cost	193
Net Income After Withdrawals per cow	77
Net Income After Withdrawals per cwt	15
Total Investment per Breeding Cow – cost basis	7,570

*Calculated as number calves weaned / number cows exposed to a bull

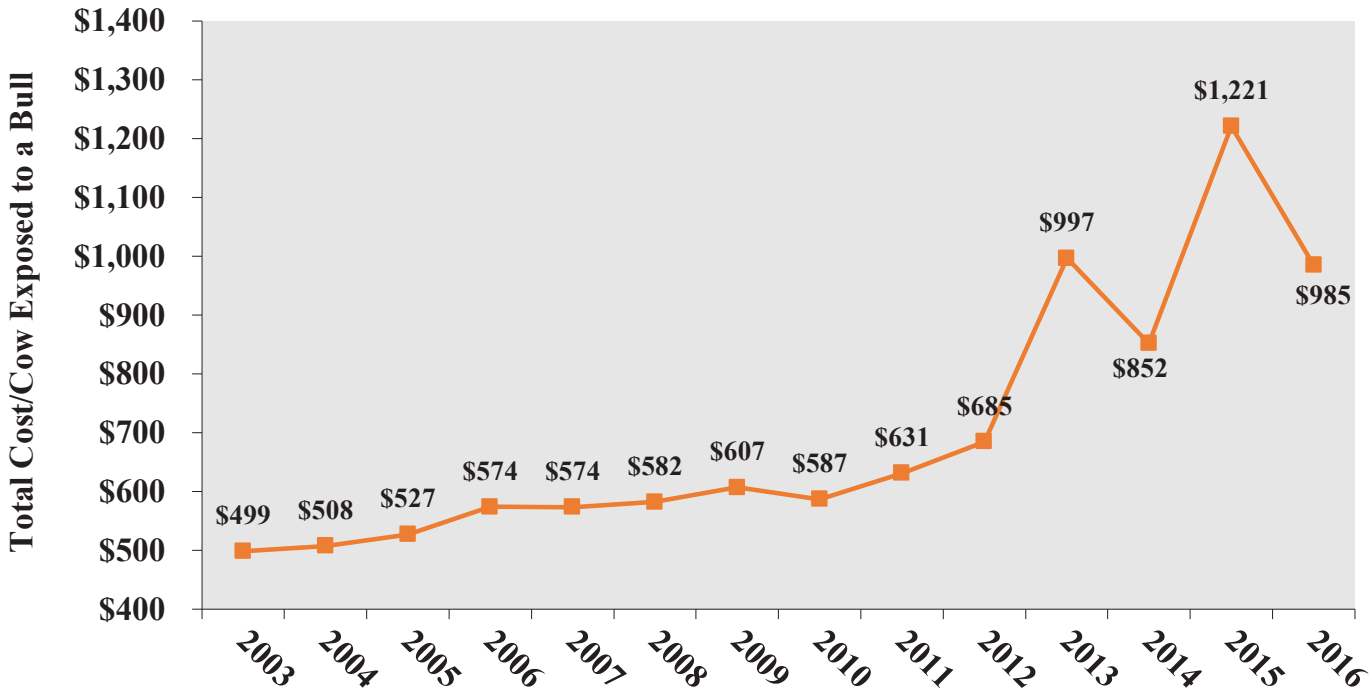

Figure 1. Breakeven cow cost from 2003 through 2016 (SPA)

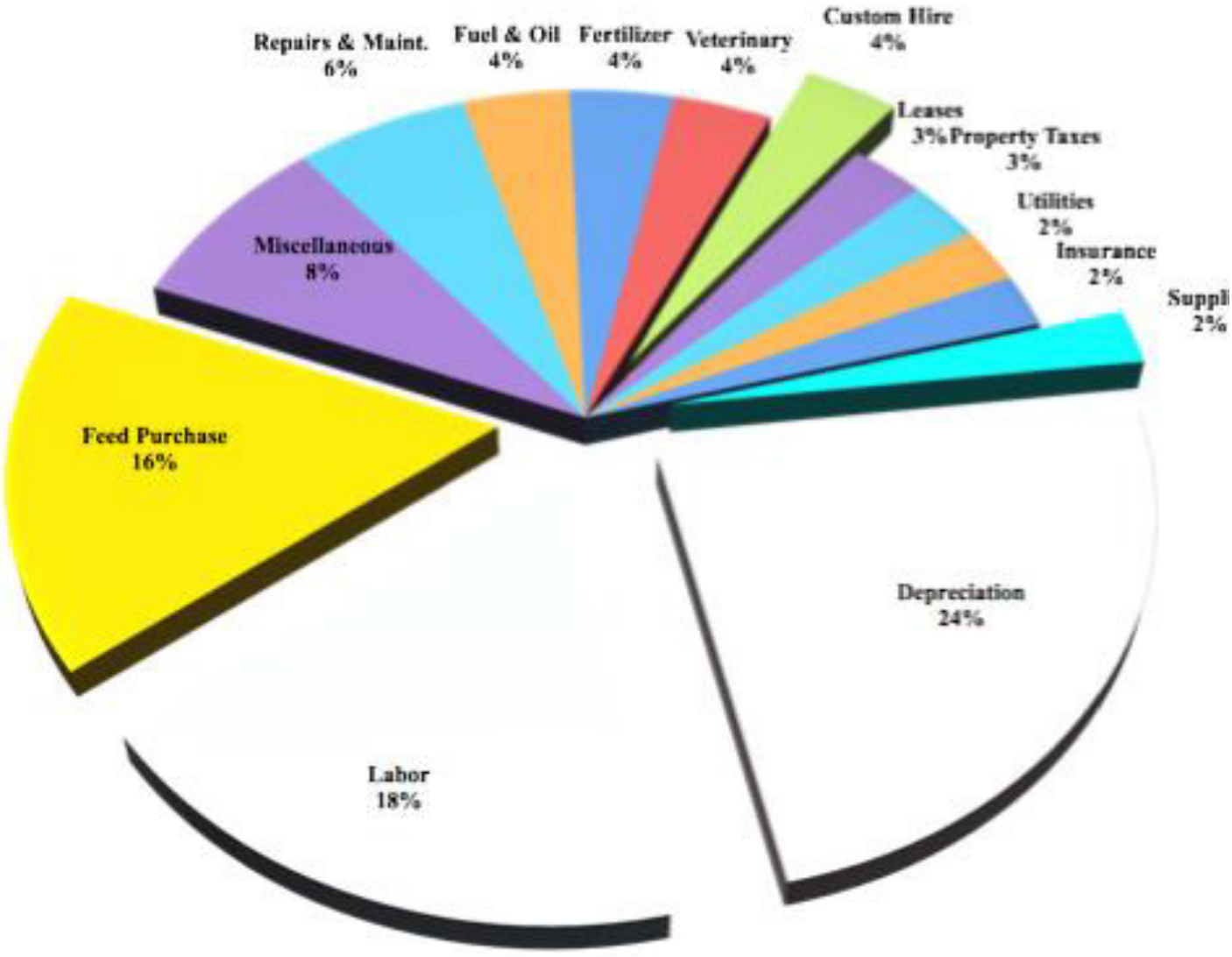

Figure 2. Expense Category contribution to total expenses per cow exposed from the Southwest SPA database in 2008 to 2012 production years.