

Financial Pitfalls Encountered
in Expansion of the Beef Herd
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Introduction

Cattle numbers and cattle prices tend to vary widely over time. These variations are basically of three different types: 1) seasonal variations, 2) long term trends, and 3) cattle cycles. All three of these movements affect the cattle industry and the returns to producing feeder calves.

An example of seasonal price variation is higher prices for yearling steers just as spring grazing becomes available. An example of seasonality in cattle numbers is the increased feeder calves on the market in October.

Long term trends affecting the cattle industry include the rapid increase in per capita beef consumption since World War II.

The variation of most importance to today's discussion, however, is cattle cycles and their impact upon sound investment and financial management practices. The cattle cycle tells us that just as cattle prices have increased they are likely to decline at some time in the next three to five years.

Figure 1 shows the United States cattle cycles from 1867 to 1978. Each cycle involves a rhythmic increasing and decreasing of cattle numbers. Cattle cycles tend to vary from eight to twelve years and have been recurring quite regularly since the late 1800's. There are certain characteristics common to all of these cycles. Each cycle has two separate and distinct phases. One is an expansion phase or a buildup in the numbers of cattle while the second phase is characterized by a liquidation of cattle. During the last cattle cycle, cattle numbers began increasing in 1968 and reached their peak in 1975 --an example of the expansion phase. From 1975 until today there has been a very pronounced decline in total cattle numbers --an

example of the liquidation phase of the cattle cycle.

Cattle numbers are increasing and decreasing in response to anticipated prices to be received by producers in the future. These anticipated prices are primarily based upon current prices as far as most cattle producers are concerned.

An examination of the relationship between cattle numbers and cattle prices reveals an inverse relationship between the two. Figure 2 shows the relationship between cattle numbers and cattle prices for the period 1950 to 1978. It will be observed that as cattle numbers are increasing during the expansion phase of the cattle cycle, cattle prices are declining. Conversely as cattle numbers decline during liquidation the price of feeder steers tends to be increasing. There is the potential for prices to decline as rapidly as they increase. There is, therefore, a potential adverse financial impact for those growers who are expanding their herds in response to periods of higher prices.

What we want to do today is investigate potential pitfalls of expanding one's cattle herd at various points during a typical cattle cycle. In so doing we hope to provide information enabling cattlemen to better evaluate opportunities for profitable cattle production helping to prevent untimely expansion of beef cattle herds.

Case Problem

Table 1 shows the gross income expected per brood cow as the price of 410 pound steer calves increases from 40 cents to 85 cents per pound. The relationship between the selling price of steers and the gross income received per brood cow was developed from information contained in the Idaho Farm Business Management Series Publication, Number 11, "Upper Salmon River Estimated Costs and Returns for a 200 Head Cow-Calf Enterprise." Cost

information used in the following tables was also based upon this publication. Thus, when 410 pound steer calves are selling for 40 cents a pound, the gross income from the sale of steer calves, excess heifer calves, cull cows and cull bulls, was estimated to be \$147.00, increasing to \$312.00 as selling price increases to 85 cents.

Table 2 estimates the annual costs associated per brood cow. Total operating costs, excluding interest on investment, are estimated to be \$215.00 for purposes of this example. Total costs of \$215.00 include cash operating costs of \$130.00 and non cash operating costs of \$85.00. The non cash operating cost includes a charge for depreciation and for family labor.

Table 3 estimates the return to capital investment per brood cow as the selling price of 410 pound steer calves increases. When steer calves are selling for 40 cents a pound, the gross income and total cost were above estimated to be \$147.00 and \$215.00 respectively. This leaves a return to capital investment of a minus \$68.00. The return increases to a loss of \$13.00 when steer calves are selling at 55 cents. It increases to a positive return to capital investment of \$42.00 when steer calves are 70 cents and to a return of \$97.00 per cow when steer calves are selling for 85 cents per pound.

Table 4 estimates the return above cash costs per cow and per 200 cow herd. When the price per pound of steer calves is 40 cents, gross income is \$147.00, less the cash costs of \$130.00 (Table 2) leaving a return above cash costs of \$17/cow. When steer calves are selling at 55 cents there is a return above cash costs of \$72.00 per cow, increasing to \$127.00 and \$182.00 when steer prices increase to 70 and 85 cents per pound, respectively. Return to the 200 cow herd is \$3400.00 above cash costs, when steer prices

are 40 cents per pound and increases to a \$36,400.00 return above cash costs as steer prices increase to 85 cents a pound.

Table 5 estimates the increased value of cows as price levels for steer calves increase from 40 cents to 85 cents. This is \$300.00 when calves are selling at 40 cents increasing to \$750.00 when calves are selling at 85 cents. The additional borrowing capacity that is generated as the value of the breeding herd goes up is also estimated in this table. Assuming that there is a 70 percent loan at 9 percent interest rate on the total value of the cows (valued at \$300/head), debt is \$210/per head The ranchers equity is \$90/per cow. As the price of feeder calves increases to 85 cents the value of the cows are estimated to increase to \$750.00. The equity per cow has now increased from \$90.00 to \$540.00. The ranchers equity on the 200 cows has increased from \$18000.00 to \$108,000.00. The additional borrowing capacity, considering a 70 percent loan, is zero when calves are at 40 cents and cows are valued at \$300.00 because there is already a 70 percent loan on these cows. The additional borrowing capacity increases to \$63,000.00 as cow values increase to \$750.00. Assuming that the rancher borrows \$63,000.00 on his existing herd to expand, he can purchase an additional 80 cows at \$750.00 per head, leaving \$3000.00 for the purchase of two or three additional bulls.

Table 6 evaluates the return above cash costs per cow and per herd following the expansion of the herd to 280 cows. The returns above cash costs for the 280 cow herd are now \$4760.00 when steers are priced at 40 cents increasing to \$50,960 above cash costs when steers are selling at 85 cents per pound. Given this potential income level many ranchers would be tempted to expand very quickly to take advantage of what appears to be some very lucrative returns.

Additional consideration should be given, however, to the total debt service involved. In this particular example we are going to ignore any debt service on real estate or operating equipment and only look at the impact of increasing debt on the breeding herd itself. Additional outstanding debt on land or equipment would result in higher debt service requirements and further increase the risk of untimely expansion. The \$210.00 debt on each of the initial 200 cows is equivalent to a \$42000.00 loan (at 9 percent interest). Further assuming that the \$63,000 borrowed today would be at an interest rate of 12 percent, debt service on four year loans of \$42000.00 and \$63000.00 at 9 and 12 percent interest would be equal to \$33701.00 per year. Subtracting \$33701.00 a year in debt service from the return above cash costs on the 280 cow herd gives the return above cash and debt service for each of the steer price levels. If steer price levels were to decline to 40 cents per pound, cash losses of \$28941.00 would result, whereas at 85 cent price levels, a return above cash costs of \$17259.00 would be earned. From these earnings, family living expenses, other debt service and income taxes would also have to be paid.

It is rather easy to see that debt service considerations alone are extremely important in making the decision of whether or not to expand the cow calf herd during periods of high prices. It is always very tempting to increase cow numbers when cattle prices are high with the anticipation of increasing net income to the ranching operations. However, just as breeding stock prices and calf prices tend to increase rapidly near the beginning of the expansion phase of the cattle cycle they also tend to decline rather quickly during the liquidation phase. Many ranchers have been caught in a financial squeeze and have found it necessary to liquidate their herds as declined prices. Thus, it can be a financial pitfall

to buy into or expand beef cattle operations while price levels are high as cash flow problems can quickly develop as these prices begin to level off, plateau and then decline during the liquidation phase of the cattle cycle.

Table 1. Gross Income Per Brood Cow By Selling Price of 410 Pound Steer Calves*

<u>Price/Pound 410 Lb. Steer Calves</u>	<u>Gross Income</u>
\$.40	\$147
.55	202
.70	257
.85	312

Table 2. Cash, Non-Cash and Total Costs Per Brood Cow

Cash Operating Costs	\$130
Non-Cash Operating Costs (including depreciation and labor)	85
Total Costs (excluding interest on investment)	<u>\$215</u>

Table 3. Return To Capital Investment Per Brood Cow By Selling Price of 410 Pound Steer Calves

	<u>Price/lb. 410# Steer Calves</u>			
Price/lb.	<u>\$.40</u>	<u>\$.55</u>	<u>\$.70</u>	<u>\$.85</u>
Gross Income	147	202	257	312
Less Total Costs	215	215	215	215
Return to Capital Investment	\$-68	\$-13	\$ 42	\$ 97

Table 4. Return Above Cash Costs Per Cow and Per 200 Cow Herd

	<u>Price/lb. 410# Steer Calves</u>			
Price/lb.	<u>\$.40</u>	<u>\$.55</u>	<u>\$.70</u>	<u>\$.85</u>
Gross Income	147	202	257	312
Less Cash Costs	130	130	130	130
Return Above Cash Cost/Cow	\$ 17	\$ 72	\$127	\$182
Return Above Cash Cost/200 Head Herd	\$3400	\$14400	\$25400	\$36400

Table 5. Comparison of Value of Cows, Equity Per Cow and Per 200 Cow Herd and Additional Borrowing Capacity At \$.40 and \$.85 Feeder Calf Prices

	<u>\$.40 Calves</u>	<u>\$.85 Calves</u>
Value of Cows	300	750
Debt. (9% interest)/Cow	210	210
Equity/Cow	<u>\$ 90</u>	<u>\$540</u>
Equity/200 Cow Herd	\$18000	\$108000
Additional Borrowing Capacity (70% loan)	0	63000

Table 6. Return Above Cash Costs Per Cow And Per 280 Cow Herd

	<u>Price/lb. 410# Steer Calves</u>			
	<u>\$.40</u>	<u>\$.55</u>	<u>\$.70</u>	<u>\$.85</u>
Gross Income/Cow	147	202	257	312
Less Cash Costs	130	130	130	130
Return Above Cash Costs/Cow	<u>\$ 17</u>	<u>\$ 72</u>	<u>\$127</u>	<u>\$182</u>
Return Above Cash Costs/280 Cow Herd	\$ 4760	\$20160	\$35560	\$ 50960
Total Debt Service	33701	33701	33701	33701
Return Above Cash and Debt Service For Living Expenses and Taxes	<u>\$ -28941</u>	<u>\$-13541</u>	<u>\$ 1859</u>	<u>\$17259</u>

FIGURE 1



