



Managing for Today's Cattle Market and Beyond

Conducting A Comparative Analysis of Your Herd's Production Facts With Other Herds' Production Facts

By
Harlan Hughes
North Dakota State University

Introduction

A *Comparative Analysis* is the single most powerful farm and ranch management tool available. This tool works especially well as a way of identifying where beef farmers or ranchers should focus their management attention to increase profits in these tough times. This fact sheet takes a beef farmer or rancher through a step by step comparison of his beef cow profit center's production facts with the production facts of a set of benchmark herds.¹ Production areas *where the producer beats* the benchmark herds suggest potential strengths in the beef cow herd. Production areas *where the producer is beat by* the benchmark herds suggest potential weaknesses in his beef cow herd.

Benchmark Herds

The reason that benchmark herds are not used more by farmers and ranches is that they generally do not have access to other beef producers' herd data. The published North Dakota IRM 1994 Database, here after referred to as the Northern Plains Benchmark Herds, will be used as the benchmark herds in this fact sheet.²

Two Northern Plains benchmark summaries are used in the production comparisons described below. The first benchmark summary is the average, along

with the high and low values, for each individual benchmark factor. The second comparative benchmark is the average of the low 1/3 herds, middle 1/3 herds and high 1/3 herds grouped according to their unit costs of producing a hundred weight of calves. Even if producer's herd is not located in the Northern Plains, he should still find it useful to compare his beef cow profit center's production facts to the production fact of the Benchmark Herds.

Two key points that any producer need to be remember when conducting a comparative analysis of his beef cow profit center. First, his goal should be to use these benchmark herds to identify his herd's *potential production strengths* and his herd's *potential production weaknesses*. He should use these potential strength and potential weakness as a guide for focusing his management attention in these tough times.

Second, benchmark comparisons *do help* producers identify weakness but benchmark comparisons *do not tell producers* how to reduce weaknesses. You, as the manager, have to determine *how to reduce* your herd's potential weaknesses. Other fact sheets in this series were written to suggest how beef farmers and ranchers might reduce selected potential herd weaknesses.

Production Facts

1. SPA Adjusted Females Exposed

Table 1. Summary of Cows Leaving The Herd Since Last Year's Weaning

a. Number of cows that died.....	_____	Head
b. Number of cows sold because of age	_____	Head
c. Number of cows sold because of physical defects	_____	Head
d. Number of cows sold because of poor fertility or open	_____	Head
e. Number of cows sold because of inferior calves	_____	Head
f. Number of cow sold for replacement stock	_____	Head
g. Number of cows sold for unknown reasons	_____	Head
Total Number Culled		_____ Head
h. Total females Exposed To The Bull Two Seasons Ago	_____	Head
I. SPA Adjustment = $\frac{\quad}{b} + \frac{\quad}{c} + \frac{\quad}{e} + \frac{\quad}{f} + \frac{\quad}{g} =$	_____	Head
j. Cows Purchased.....	_____	Head
k. Exposed/bred females sold	_____	Head
l. Net Adjustment to females exposed	_____	Head
$l = I - j + k$		
m. SPA Adjusted Females Exposed	_____	Head
	h - l	

The *National Integrated Resource Management Standardized Performance Analysis (IRM-SPA) Guideline* suggest that Production efficiency should be measured by the “*SPA Adjusted Females Exposed.*” This national guideline allows producers to adjust the females exposed for 1) why cows were culled, 2) for purchased female animals, and 3) for the sale of breeding females. Table 1 is designed to help producers determine their SPA Adjusted Females Exposed. While a producer’s herd may exceed the minimum or maximum size of the cow groups represented in Table 1, this is not critical to this comparative analysis. Table 2 is presented just to illustrate the range in herd sizes of the Benchmark herds.

Table 2. SPA Adjusted Females Exposed In The Benchmark Herds

36	166	480
Low	Average	High

Pregnancy Rate

Pregnancy rate is based on the number of females checked pregnant divided by the SPA Adjusted Females Exposed. The equation to use is:

$$\text{Pregnancy Percentage} = \frac{\text{No checked preg.}}{\text{Adjusted SPA Females}} \times 100 = \text{_____}\%$$
Preg. Percent

Calculate your pregnancy percentage and post the value in the appropriate place on the barometer in Table 3 and determine if your pregnancy rate is a strength or weakness of your herd.

Table 3. Pregnancy Rate

86%	94%	100%
Low	Average	High

Calving Rate

Calving rate measures the number of females that had a live calf. Abortions are not included but still-borns are. Still-borns are also included in the calf death number. Calving rate is calculated with:

$$\text{Calving Rate} = \frac{\quad}{\quad} \text{ divided by}$$

$$\frac{\text{Cows Calving}}{\text{SPA Adj Females}} \times 100 = \frac{\text{Calving Rate}}{\text{Calving Rate}} \%$$

Calculate your percent calf crop and post your answer to the barometer in Table 4.

Table 4. Calving Rate

82%	94%	100%
Low	Average	High

Percent Calf Death Loss

Percent calf death loss is the one production measure that is not based on females exposed. Percent calf death loss is based on the number of calves born. The formula is:

$$\text{Percent Calf Death Loss} = \frac{\text{No Dead Calves}}{\text{No Calves Born}} \text{ divided by } \frac{\text{No Dead Calves}}{\text{No Calves Born}} \times 100 = \frac{\text{No Dead Calves}}{\text{No Calves Born}} \%$$

Calculate your herd's percent calf death loss and post it to the barometer in Table 5 for your comparison to the benchmark herds.

Table 5. Calf Death Loss

0%	3%	11%
Low	Average	High

Percent Calf Crop

The primary reproductive efficiency measure suggested by the IRM-SPA Guidelines is the number of live calves weaned based, once again, on the SPA Adjusted Females Exposed. The formula is:

$$\text{Percent Calf Crop} = \frac{\text{Lives Calves Weaned}}{\text{SPA Adjusted}} \text{ divided by } \frac{\text{Lives Calves Weaned}}{\text{Females Exposed}} \times 100 = \frac{\text{Lives Calves Weaned}}{\text{Females Exposed}} \%$$

Table 6. The Percent Calf Crop

76%	92%	100%
Low	Average	High

Average Weaning Weight

Weaning weight is still the most observed production indicator used by the cow calf sector and does have some significant economic significance. While weaning weight statistically explains only 20 percent of the variation in unit costs of production in the benchmark herds, the weaning weight of the low cost 1/3 of the herds averaged the highest at 615 pounds.³ This compares to the middle 1/3 of the herds averaging 554 pounds and the high cost 1/3 of the herds averaging 547 pounds. Post your herd's average weaning weight on the two barometers in Tables 7a and 7b.

Table 7a. Average Weaning Weights (Unadjusted)

440	571	761
Low	Average	High

Table 7b. Average Weaning Weight By Cost Group

614 lbs.	554 lbs.	547 lbs.
Low Cost 1/3	Middle Cost 1/3	High Cost 1/3

Pounds Of Calf Weaned Per Female Exposed

A second critical measure of the production efficiency of a beef cow herd is the pounds of calf weaned per female exposed. The range of the benchmark herds went from a low of 353 pounds per cow to a high of 751 pounds per cow with a 528 pound average (see Table 8a). Table 8b presents the average pounds weaned for the low 1/3, middle 1/3 and high 1/3 cost groups. Note that pounds weaned per female exposed goes down as unit costs of production go up. This suggests that one key to lowering costs of production is increased pounds of live calf weaned per female exposed.

Table 8a. Pounds Weaned Per Female Exposed

353	528	751
Low	Average	High

Table 8b. Pounds Weaned Per Female Exposed

569 lbs.	515 lbs.	501 lbs.
Low Cost 1/3	Middle Cost 1/3	High Cost 1/3

Table 9. Summary Of Potential Strengths & Weaknesses For Your Herd

Item	Your Value	Benchmark Value	% Of Bench
1 SPA Adjusted Females Exposed	_____	_____	_____
2. Pregnancy Rate	_____	_____	_____
3. Calving Rate	_____	_____	_____
4. Percent Calf Death Loss	_____	_____	_____
5. Percent Calf Crop	_____	_____	_____
6. Average Weaning Weight	_____	_____	_____
7. Pounds Of Weaned Calf Produced Per Female Exposed.	_____	_____	_____

Production Strength and Weakness Summary

Now that you have completed your *Comparative Production Analysis*, enter in your herd's production values, the average benchmark values, and calculate your herd's percent of the benchmark values. Those production items with an index over 100, with the exception of percent calf death loss, (i.e., greater than 100%) are candidates to be your herd's potential strengths and those items with an index less than 100 are prime candidates to be your herd's weaknesses.

One Last Caution

There is no hard and fast rule for identifying your herd's strengths and weaknesses. The best procedure, of course, is to have a perpetual inventory of herd performance records that are compared to contemporary herds. North Dakota's Cow Herd Analysis Performance System (CHAPS) is one such perpetual inventory and contemporary system. CHAPS is available in 20 plus states. But short of having your own production records, this fact sheet may be your best alternative.

One other caution is that you, as the herd's manager, have to be the final decision maker on what is a strength or what is a weakness. Unique circumstances can make your herd's performance logically differ from the benchmark herds. If so, then ignore the benchmark signal and use your own judgment. In most cases, however, benchmark comparisons typically identify some strengths and weaknesses. In these tough times, the informed beef cow manager will focus his management energies toward capitalizing on his herd's strengths while trying to reduce his herd's weaknesses. When management energies are focused on facts and the

analysis of these facts rather than perceptions, profits generally increase.

¹ It is recommended that you divide your beef farm or ranch business into profit centers. A typical ranch should be divided into a beef cow profit center, a forage profit center, and a pasture profit center. If calves are backgrounded and or retained, you should also have a backgrounding profit center and a retained ownership profit center. The key, here, is to treat each profit center as a stand alone business. The forage fed is charged to the beef cow profit center at fair market value and the forage profit center is credited with the market value of forage produced.

² Harlan Hughes, "IRM-FARMS Databank 1994 Herds," Department Of Agricultural Economics, North Dakota State University, September 1995, 10 pages.

³ The herds with super large cows (average herd cow weights above 1500 pounds) were not the low cost herds in the benchmark. While I lacked sufficient number of the super large cow herds (weights above 1500 lbs) to do a formal study, I would hypothesize that as cow weight increases above 1500 pounds, that feed costs accelerate, reproductive efficiency drops and unit costs of reducing a hundred weight of calf increases at an increasing rate as cow weight increases. Big cows milk high, eat accordingly, and may well be limited by the environment. More research is needed on the economics of super large cows.

