# In Search of Beef Production Nirvana
## Things a cow-calf producer learns when you own a feedyard: what drives profit?

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**Executive Summary**

The increasing volatility of market price and weather patterns are two major challenges that pose serious threats to profitability in our "betting on the come" segmented management systems. We hope to counteract some of that risk through further integration in the beef industry which can increase opportunity to add value and efficiency to the whole system thus increasing long term profitability. Added value can be recognized through increased revenues generated from producing a more targeted, consistent product and then marketing that product to those who desire it most. Added efficiency can be realized through the cost-side of the profitability equation. As trust between segments increase, unneeded redundancies will be discarded. A greater understanding of how each segment affects the system as a whole will cause inputs to be used in an increasingly additive fashion rather than the traditional "I am going to get mine" approach. Beef production's competitive advantage over swine and poultry is our ability to turn roughage into protein. Thus, the profitability measure in an integrated system should become more focused on a "return per acre" as opposed to "return per cow", which should intensify our focus on optimizing the use of the whole system's capacity.

Although the challenges facing this industry are not for the faint of heart, we can adapt and prosper. The speed of our progress will be highly correlated to the cohesiveness of our approach as opposed to trying to do it all within our own little segmented operational vacuums. Ranchers, feedyards, packers, retailers, researchers, associations and allied partners taking the time to develop the pertinent questions and coordinating their approach so as to not waste intellectual and financial resources on stuff that has little effect on sustainable profitability will be key to our future success.

**What we have learned since owning a feedyard:**

The organization that I work for is in beef production because we want to own agricultural land. Owning good land is a wholesome food producing investment that can feed people in a time of need which also can provide a hedge against inflation. Consequently, some of that land is best suited for beef production. So when talking about profitability, we are much more concerned with a sustainable return per acre rather than return per cow. Thus, owning a feedyard and/or entering into an agreement with a packer to develop a branded product are further attempts to return more dollars to the original land investment. We also hope the closer we get to the consumer dollar the more we will lessen the price volatility of our final product. Within that framework, the following observations are provided to encourage thought more than to provide absolute answers.

1. Market price for our calves or our fed cattle has more influence on our profitability than anything else we do. Unfortunately, our company doesn't have a system that can accurately forecast what our calves are going to be worth or whether those calves will make money in the feedyard or not ($P < .000001$). In fact, market variability has been quite pronounced over the last few years as shown in Table 1 and Table 2. Table 1 shows the actual prices and Table 2 defines the year on year variation. Table 2 shows that from 2012 to 2016, calf prices have changed up or down from the previous year by an average of 20% or $241 per head. That is all fine and good when it is going up, as it did in 2013 and 2014. However, coming down may present some real problems if you haven't been thrifty with previous profits and are not willing to adapt. Consequently, Table 2 also shows the volatility appears to be slightly less on fed cattle over that same period.

Table 1. Average of Weekly Market Price ($ / head)

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|
| Jan-Mar 550 lb. Steer [a] | 842 | 974 | 957 | 1,210 | 1,551 | 1,089 |
| Jan-Mar Fed Steer [b] | 1,430 | 1,625 | 1,638 | 1,885 | 2,106 | 1,768 |
| Jul-Sep Fed Steer [c] | 1,482 | 1,560 | 1,586 | 2,067 | 1,885 | 1,560 [d] |

[a] Nebraska average of weekly prices from Jan to Mar
[b] Kansas average of weekly prices from Jan to Mar (assumed 1300 lbs.)
[c] Kansas average of weekly prices from Jul to Sept (assumed 1300 lbs.)
[d] Not actual; based on an estimated price of $120/cwt.

| Table 2. Percentage variation in revenue per head from one year to the next | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2012 | 2013 | 2014 | 2015 | 2016 | 5 year avg.[d] | Avg. $/head [e] |
| Jan-Mar 550 lb. Steer [a] | 16% | -2% | 26% | 28% | -30% | 20% | $ 241 |
| Jan-Mar Fed Steer [b] | 14% | 1% | 15% | 12% | -16% | 11% | $ 203 |
| Jul-Sep Fed Steer [c] | 5% | 2% | 30% | -9% | -17% | 13% | $ 218 |

[a] Formula for 2012 = From Table 1 (2012 price / 2011 price) – 1 (rounded to nearest percent)
[b] Formula = From Table 1 (2012 price / 2011 price) – 1 (rounded to nearest percent)
[c] Formula = From Table 1 (2012 price / 2011 price) – 1 (rounded to nearest percent).)
[d] Sum of absolute values of the year to year percentage changes from 2012 to 2016 divided by the 5 years
[e] Sum of absolute values of the year to year dollar changes from 2012 to 2016 divided by the 5 years

2. Weather extremes can also wreak havoc on profitability by rapidly increasing the cost of production. We cannot predict the weather so as to plan optimum stocking rate; we can only react to it. Table 3 shows the effects of the extreme drought of 2012-2013 which nearly doubled our cost of production on the Rex Ranch. Fortunately, the increase in the 2014 market price baled us out of what could have been a severe loss on the 2013 calf crop.

| Table 3. Rex Ranch Annual Calf Cost ($/head) | | | | | | |
|---|---|---|---|---|---|---|
| | 2011 | 2012 | 2013 | 2014 | 2015 | Average Variation |
| Calf Cost | 453 | 635 | 876 | 591 | 579 | |
| Variation from previous year | (20) | 182 | 241 | (285) | (12) | 148 |

3. A feedyard when used as a hotel to rent space makes a nice return on investment as long as you keep occupancy up. However, the profitability of owning the cattle is extremely volatile. Since 2010 feeding returns have ranged from $600 to ($600) per head when viewing the feedyard as an isolated segment. When viewing the system as a whole (ranch and feedyard together) during the last few years, the $600 losses were more than compensated for by the cow/calf profitability on the ranch.

4. We learned quite a bit from 1995 to 2010 custom feeding our calves in multiple feedyards and harvesting the cattle at multiple packing plants. However, since feeding our cattle in one yard for the past six years and harvesting at only two plants, we feel we are learning at a much faster pace than before.

5. We are learning how to feed cattle differently from different parts of the country.
   o Florida calves fed a higher roughage ration than previously for first 60 days in the feedyard caused dry matter intake to increase from 1.6% to 1.9% of body weight and decreased founders from 7% to 0%. Whereas, the western calves never really exhibited an intake problem or founder problem to begin with.

6. We are adjusting how we implant cattle based on genetic make-up
   o Holstein calves from our dairy in Utah require a less aggressive implant protocol than we originally assumed. The less aggressive protocol decreased dry matter feed conversion (DM lbs. per lb. of gain) from 6.7 to 6.2, increased ADG (lbs. per head per day) from 2.8 to 3.1 and increased hot carcass yield from 58.5% to 61.5%.

7. Animal handling/disposition plays a role in feedlot performance. For years, Rex Ranch has focused on animal handling technique because our grazing philosophy requires that we move often and we choose not to increase labor (one man moving 850 pair every 3 to 4 days). We have also culled the poor attitudes (I am only talking about the cattle; fortunately, they have allowed me to stay on.). Consequently, the Rex cattle' disposition is noticeably different in eyes of the feedyard cowboys and they appear to have a slight edge on feedyard performance in terms of dry matter feed conversion (DMC) and average daily gain (ADG) when compared to cattle of similar genetics from our other ranches. In addition, another one of our operations has made an intensive effort to decrease hotshot use. The resulting difference in the way the cattle handled and came up on feed was noticed immediately at the feedyard. We fully expect the differences of cattle disposition between ranches to dissipate as we focus on improving our animal handling skills company wide.

8. You can improve genetics within a genetic interval using EPDs and it will translate into added feedyard performance and profitability.

   o Prior to 1999, we were still using ratios to select our bulls on our Florida operation. Finally, in the year 2000, all the hard work and foresight over the prior years of data collection culminated in us being able to run EPDs on our ranch raised bulls. As you can imagine, those EPDs had very low accuracies but we used the EPDs and a disposition score to cull the bottom third of our bull battery. We had been custom feeding our calves for the last 5 years so we had a pretty good idea of what they were. The next two calf crops from the improved bull battery showed significant improvement in feedyard performance. Calf fed ADG improved from 2.6 to 2.9 and DMC improved from 6.7 to 6.2. This added performance jump has been retained and improved upon to this day through the consistent use of EPDs.

   o In the early to mid1990's calves raised on the Rex Ranch were sold and fed to repeat buyers and those buyers reported that they graded 70 to 80% choice. Prior to 2007, the Rex Ranch was using ratios to select their bulls off test. In addition, the ranch raised bulls with the highest ratios were collected and used along with a few proven AI sires to expose the seedstock cows for the next bull crop. Since marbling wasn't seen as a problem, selection focus for several years had been on creating the best cow for the environment that produced a calf that grew well post weaning. Consequently, pregnancy rate and weaning percentage both improved from 92% to 94% and ranch cost of production held steady. However, quality grade by early 2006 had decreased by 40% and dystocia rate on our 1st calf heifers was around 25%. In 2007, we made bull and seedstock cow selections based on our first in-herd EPD run and we used only high accuracy industry proven AI sires on the seedstock cows. Using EPDs, we intensified our focus on improving marbling and calving ease and tried not to give up too much growth or ruin the cow in the process. In 2015, our dystocia rate on our 1st calf heifers that had been exposed to our ranch raised bulls had decreased from 25% to 8%. Our feedyard performance had held steady while quality grade had risen back to 80% choice or better. ADG and DMC on comparable sets of cattle across years has held steady or improved. 1737 head of open yearling heifers placed in the yard in September 2015 at 761 lbs. closed out in January and February of 2016 with 841 lb. hot carcass weight, 3.76 lb. ADG, 6.23 DMC, 87% choice or higher, 44% Y1&Y2s and 10.4% Y4s. Clearly, progress can be made if we use the technology and tools available to us in a sound fashion.

Table 4. Calves weaned from two different ranches experiencing extreme drought [a]

| | 2012 Preg Rate | 2013 Preg Rate | In Wt. | Out Wt. | HCW | Death Loss | DoF | ADG | DMC | COG |
|---|---|---|---|---|---|---|---|---|---|---|
| Ranch A | 91% | 92% | 621 | 1,408 | 901 | 1.1% | 209 | 3.74 | 5.57 | $ 1.03 |
| Ranch B | 93% | 91% | 538 | 1,382 | 885 | 10.5% | 288 | 2.71 | 6.34 | $ 1.23 |

[a)] Both ranches calves had been weaned in growyards prior to entering the feedyard. Ranch A's calves stayed in the growyards 45 days longer.

9. The nutritional environment absolutely matters from conception to carcass.
   o Two of the ranches in our system that experienced serious drought conditions had drastically different feedyard performance from the calves weaned during the drought. However, both ranches had similar conception rates during the drought so you couldn't see the nutritional effects in cow condition. Table 4 shows the differences in feedyard performance.

10. For better or worse, owning a feedyard has narrowed our focus and decreased our marketing options allowing us to spend more time on improving operational efficiency. The following points indicate some of the changes that have occurred.

    o Our marketing options have been greatly simplified. We no longer sell calves or yearlings just fed cattle on a carcass basis. This change greatly simplifies the revenue equation.
    o If it doesn't make logistical sense on the ranch to ship the cattle from a set of scales, we can just add back the historical shrink to the off truck weight at the feedyard for the ranch's data.

    o In the dead of winter with extreme weather, we no longer worry about an early morning gather for weigh up purposes. Instead, we gather the cattle later to make sure they have watered and eaten to lessen the stress of the haul and arrival.

- Since our cattle are sold on a carcass weight basis, we have foregone the weighing of our fat cattle prior to hauling them to the plant to decrease stress, labor and dark cutters.

- We are streamlining our processing protocols so as to not unnecessarily repeat vaccinations.

- We have quit sorting off and haggling on the value of what appears to be lower quality cattle. What few head of cattle that are lighter weight, off color, rat tails, long ears, humps, etc… ship together and feed right along with the others of their same weight class.

- It is exciting to see our people in the field moving beyond being cowboys to becoming beef producers.

11. "In Search of Beef Production Nirvana" what kind of title is that? Wikipedia defines Nirvana in the following ways (I am partial to the Hindu philosophy):

    - In the Buddhist tradition, nirvana is described as the extinguishing of the fires that cause suffering and rebirth.[29] These fires are typically identified as the fires of attachment (raga), aversion (dvesha) and ignorance (moha or avidya).

    - In Hindu philosophy, it is the union with Brahman, the divine ground of existence, and the experience of blissful egolessness.[8]

The overall question for our industry should be: In our quest to achieve Beef Production Nirvana, what is the most efficient, cost effective way to provide a constant flow of quality beef to various targeted markets? Individually, each of us need to ask: What role do I play in adding value to that system, how can I improve and how do I get compensated properly for my contribution?