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## INTENSIFICATION OF COW/CALF PRODUCTION: A HISTORY

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### INTRODUCTION

The Cow-Calf sector of the beef industry has undergone a period of increasing intensification and tremendous changes in productivity over the past 25 years. Improved technology, new production systems and changing economics have driven the Cow-Calf sector to higher and higher production levels. In this presentation I will lay out the underlying reasons for this increased production and intensification and why it will continue in the future.

### HISTORY

Cattle production on the western Great Plains developed around an investment opportunity in which entrepreneurial domestic cattlemen and later capitalists from Great Britain sought high returns on their capital by selling beef animals to a growing and hungry post Civil War America. Our industry has a rich history of periods of investment and divestiture as capital has flowed freely until cattle returns are competitive with other investment opportunities. Market participants today, and 125 years ago, make decisions daily on the potential returns available in the cattle business.

Evaluation of return possibilities and risk assessment determine the prices set for cattle, land and other input prices in our production system. Measuring this return is best calculated by dividing the income returned above and beyond all cost (the numerator) by the assets necessary to produce this income (the denominator). This calculation of return on assets (ROA) is an important factor that has driven the increase in productivity and intensification. I believe this phenomenon will continue for the foreseeable future.

### DIMENSIONS OF INVESTMENT

One of the burdens of our business is that in commodity production, over the long run, price is equal to average cost of production. This is a fact, which cannot be changed. No amount of increased demand, lowered costs or governmental support will change this fact.

In the Cow-Calf business there are very few barriers to entry. A cow can survive eating sagebrush in the intermountain west or swamp grass in the southeast. Any Cow-Calf profits realized are a green light for market participants to deploy more capital in order to capture these profits. This fact is the driving force behind our 10-year cattle cycle. Moreover, many

cattlemen have a few cows solely for the romance and enjoyment of raising cattle. These cattlemen are willing to accept extremely low returns or subsidize their cattle operations with other sources of income. This makes it doubly hard to realize high returns in cow-calf production.

The real challenge in our business is that the bulk of our costs are outside our control. We are burdened by the denominator. The assets involved in a grazing cow-calf operation are mainly land. Our ranchland assets have appreciated greatly over the past 4 decades. Reasons for this appreciation are development, demand for land for recreational purposes and growing national wealth. Increasing land values have a major depressing affect on our ROA equation. Market value is the appropriate value to use because this ranch land could be sold and that capital invested elsewhere. Here is an example that illustrates my point. Today in western Nebraska, rangeland is worth \$200/acre. One acre of rangeland would on average produce ½ an animal unit month (AUM.) So if it takes 2 acres to produce one AUM we could sell those 2 acres and generate \$400. Now, the long-term 75-year historical returns to the stock market have been 10%. The proceeds from our theoretical land sale could be invested in equities and over the long run return \$40 annually. This means that the opportunity cost of an AUM in my example is \$40. Moreover, this is before we have paid any taxes, labor or accounted for any depreciation on the depreciable assets (waterworks, fences) associated with grazing operations. This compares very unfavorably with the rental rate for an AUM of \$20-\$25. This example graphically illustrates the incredibly high opportunity costs associated with grass and ranches. These high opportunity costs are fixed.

The cost of owning land does not change whether you are fully stocked or just letting the grass grow. The cost of the capital tied up in your ranch is present regardless of your system. These fixed costs are so high that they make our variable costs trivial in comparison. This should cause you to be skeptical next time a neighbor or professor makes claims about putting on “cheap grass gains”. Some here and in academia will argue that this approach is not appropriate. They believe that we should use production costs rather than market prices to calculate returns. Taking a portfolio approach and being willing to move capital from your ranch to other investment opportunities dictates that we use opportunity costs.

In any investment environment there is a tremendous pressure to have capital deployed where it will generate a rate of return competitive with other investment opportunities. Every week day at the corner of Broad and Wall streets at the NYSE, investors unleash the incredible power of the marketplace on publicly traded companies forcing them to generate market rates of returns on their corporate assets. Failure to do so results in a low stock price and disgruntled investors discipline management through corporate takeovers and proxy fights. While very few agricultural operations are publicly owned, this does not exempt them from the pressure for competitive rates of returns. Even with a family owned ranch, on a multi-generational basis, there is pressure to keep returns competitive. I am sure you have all seen examples where a ranch family member living away from home in San Francisco, Chicago or Atlanta says, “Hey, lets sell the ranch and divvy up the money”. If the returns to ranching were equal or better than equities, bonds or other investment vehicles there would be little incentive for family members to call for a ranch sale. This example illustrates the importance of a ROA/portfolio approach to the ranching business.

## INTENSIFICATION/INVESTMENT RELATIONSHIP

In 1950 we produced 227 pounds of beef per cow. In 2000 this figure was 626 pounds. How did this three-fold increase take place? It happened because our beef production system became more intensive with higher proportions of grain, improved genetics and an industrial approach to cattle feeding. I would argue that the driving motivation behind our adoption of these practices is that our cow-calf producers have felt the pressure of increasing their ROA by increasing production. Most of our increased production has come from Cow-Calf producers. Today 600# weaning weights are commonplace. In 1950, 300# was the norm. In contrast, the yearling end of the business has been pretty static putting on 250-300 pounds on a calf. I think it is more than coincidence that the land appreciation, which has taken place over the past 4 or 5 decades, closely parallels our increase in production per cow. If we still had \$20/acre land, we would not have seen the same productivity gains.

Agriculture is replete with examples where the drive to increase production has been driven by escalating land values. In the Flint Hills of Kansas, double stocking of yearlings has nearly doubled beef production on a per acre basis. On the high plains, eco-fallow crop rotations using herbicides allows for 2 crops every 3 years as opposed to traditional summer fallow wheat production where it takes 4 years to raise two crops. Rotational grazing and increased stocking rates began to find interest with producers when land became more and more valuable. Probably the most dramatic example is how we have continually substituted corn for grass and forages in our production system. There is a reason for this. Grass is extremely expensive on both an opportunity cost and TDN basis relative to corn. Today corn and grass hay are both worth about 3 cents a pound. However corn has double the TDN value of hay. With federal price supports for grain producers and improved technology applied to grain production I believe grain will continue to be cheap.

Producers should use caution when examining systems which move to more grass and less grain oriented systems. For example, there is a movement toward summer calving, especially in Nebraska. In this system, summer calving can reduce winter-feeding and labor; however it is a system geared to running over more yearlings. This forces producers to reduce cow numbers in order to accommodate yearlings, yearlings that eat expensive grass, not cheap grain. Moreover, this decrease in the size of your cowherd runs counter to the high fixed costs problems we find in the cattle business. Whether in a factory setting or on a ranch, we must increase our volume as much as possible to spread high fixed costs over as many animals as possible. If you accept my conclusions, it suggests that Cow-Calf producers will move toward more intensive systems. For our ranch, this intensification manifests itself in the following management practices: more use of relatively cheap corn to subsidize our high priced grass for calves and cows, early weaning of calves (more calf-feds), and intensive grazing systems.

## CONCLUSION

Major intensification has taken place in the Cow-Calf sector of the beef industry over the past 5 decades. This is the result of the changing investment environment in which ranchers operate. High fixed costs found in the high opportunity costs of ranching make the variable costs of cattle production trivial by comparison and pressure producers to higher levels of intensification. Increased use of grain and technology will continue this intensification process. I challenge this audience of ranchers and academics alike to take on this process and adopt a ROA/portfolio approach to Cow-Calf production.