Changes Which Affect Your Profit

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Introduction

Feedlot profits change dramatically from year to year. Weather and competition are the driving forces behind the annual swings shown in Figure 1. Since you can't change the weather or the competition, you have to manage around them. Facilities can be improved to reduce weather effects on cattle performance and diets can be changed to take advantage of low cost weather-damaged feeds. Beyond that, the principle strategy is to make enough money in the good times to allow you to survive the tough times.

Making enough money to survive is easier said than done. In the Iowa Feedlot Enterprise Record Program, the high 1/3 of producers made money in 12 of 15 years (1977 through 1991)[1]. The low 1/3 of producers made money in only 5 of those 15 years. The membership in this low 1/3 group is constantly changing because these producers either have to get out of the business or join a more profitable group. Every time this happens, somebody else becomes a new member of the low 1/3 group. It's the competition component of the system.

To make sure you do not become a nonprofit feedlot, you need a plan for getting an edge on your competition. Before you can develop the plan, you need to know which variables are having the greatest impact on your operation. Is it the cattle market or feed costs or brand of vaccine or implant you choose? Based on what you hear and read, it is difficult to know. Over the years I couldn't get any two sources to agree on priorities or to convince me they really had the answers for my situation.

Defining Profit Factor Priorities

To evaluate a feedlot there needs to be some benchmark from which to work. Table 1 is a list of those variables that you must consider in the management of your feedlot. Table 2 shows the average data from the ISU Feedlot Enterprise Record for the years 1987 through 1991. These are our benchmarks to use in this model. During this period, annual per head profits varied from -$54.75 to $91.89 and averaged $24.99. In your feedlot you probably have some values higher and some lower than these benchmarks. What we need to do is determine which factors are most important in terms of profit and concentrate on them. The way I chose to set priorities was to look at the gross revenue cost/benefit of making a 10% change in each of these variables from a data base average. For example, all other things being equal, what happens to profits if ADG increases 10% from the average of 2.5 lb to 2.76 lb? Conversely, what if ADG is 10% lower than average and drops to 2.26 lb? Genetics can make this much difference in ADG with no changes in management.

Linear and Nonlinear Factors

For some variables the added returns for a 10% improvement are of equal dollar value to the losses covered by being 10% below average. Basically, everything you buy falls into this linear factor group. Table 3 shows the dollar amounts associated with a ±10% change in the linear factors. Selling price, in effect slaughter cattle prices, fluctuated 20% in 1993. A 10% change in selling price is realistic and has more to do with profits than any other management factor to be considered. Purchase price of cattle is the

[1] *Loy, 1993, Iowa State University Beef-Sheep Research Report*

only other factor that comes close to selling price in economic importance. For most of us an effective marketing strategy that deals with market changes is the first thing we must consider for improving profits.

As you continue down the list of cost factors you see a swing in dry feed costs of $9/T changes profits by $17.51/head. This would be equal to a 30¢/bu change in corn prices for a 90% concentrate diet. In contrast, saving $21/T in supplement costs only changes profits by $1.96. Most of us probably spend too much of our time worrying about supplement costs relative to other more important problems.

The 10% changes in veterinary costs or death loss even when added together still came up least important in this type of analysis. This is a good example of a successful effort on the part of the industry to address health problems. For the "average" producer, health care has been improved to the point of an economic threshold. To do 10% better than average may cost more than it is worth. That does not mean you can stop thinking about your health program. Average death loss was .89% in this data base. A 10% worse situation is only .98% deads. If you are experiencing 2% deads, that is 225% worse and costs would run near $13/head.

The economic response to the biological factors associated with cattle performance is nonlinear. Performance that is 10% better than average does not generate the same dollars as are lost if these variables are 10% below average. These nonlinear factors and the corresponding economic responses to change are shown in Table 4. Feed efficiency ranks highest among the nonlinear variables. In the base model feed/gain was 7.9. When all other factors are kept equal, improving efficiency by 10% i.e. to 7.1 increases profit by $32.21/head. Feed efficiency 10% worse than average (8.7) reduces profit potential by $42.93. Poorly drained pens, slack bunk management, poorly mixed diets and inadequate nutrition can easily change feed efficiency by 10%. If you are feeding cattle with a 10% better conversion than average and your neighbor is 10% worse than average, the swing in net returns adds up to $75 per head. The profit sensitivity to feed conversions makes it difficult to justify not using an ionophore and not using scales on a mixer wagon since both improve feed efficiency.

Feed intakes varying from 17.8 lb to 21.7 lb cause a net return swing of $51.37/head. The penalty for being 10% lower than average is 150% the benefit of being 10% above average. This disproportionate condition is even more exaggerated when looking at ADG. Improving ADG from 2.51 to 2.76 can improve profit by $15/head. However, the upside on ADG is not nearly as important as the penalty for being 10% below average. When the ADG in this example drops from 2.51 to 2.26, profits drop by $37.24.

The effective use of implants, which includes re-implanting cattle, is obviously a benefit. The $15 advantage noted in Table 4 is re-implanting value over implanting only once when steers were fed for 197 days. The loss of $19.73 reflects not using any implants. The total value of a complete implanting program then is at least $34.77 (15.04 + 19.73). Even if you feed only 100 head annually, processing facilities can be paid back in a year.

Implants, ADG, DMI and feed/gain are all related to one another. If you change one of them others will have to change as well. Therefore you cannot plan to improve ADG and DMI both by 10% and expect a $35.66 (20.62 + 15.04) response. The high dollar value for feed/gain reflects the fact that it is the best sum indicator to be improving. Its value includes most of the cumulative advantages of improved ADG and DMI. The slaughter weight values represent over or underfeeding the cattle. Historically, the penalty for underfeeding has consistently been greater than for overfeeding. The wild market conditions in the late summer and fall of 1991 and 1993 are the obvious exceptions to this situation. As we move to value

based marketing, the penalties for improperly finished cattle and the cattle bred to have poor carcass traits will become greater. The $24.99 average profit for producers in this database could be wiped out when cattle are no longer bought and sold on the average. Value based marketing will require new management expertise in the future. For those who wish to move with the change, real opportunities will develop for competing with the large commercial feedlots.

Strengths and Weakness in Our Region

Now that we have identified the priority by which factors can affect profits we can go back and evaluate how feeders in this region differ by profit groups. The annual difference in net return between the high and low 1/3 operators averaged $88.89 over the last 15 years. (Figure 2) What is it that is making the differences in profits? Sale prices and purchase prices are virtually the same for these two groups. (Figure 3) Either both groups are skilled marketers or there is considerable room for improvement in either profit group.

Veterinary costs, death loss and feed costs were virtually the same for both profit groups. Everyone is learning how to manage these aspects of their feedlot and as was pointed out earlier, there is little opportunity left for profitable improvement in these areas for most producers.

The first gap we see between profit groups comes in non-feed costs (Yardage). During the period from 1985 to 1990 expansion occurred in several yards in the ISU data base and caused a shift in profitabilities. As you can see in Figure 4 these costs may be coming back together.

The greatest differences in production variables between the high and low 1/3 groups occur for feed conversion and ADG. The ADG differences were driven by differences in efficiency since feed intake (Figure 8) and grain content of diets were similar for both groups. In the last 5 years where feed/gain differences have narrowed, high 1/3 yards were still 14% more efficient than low 1/3 yards. This one factor, feed efficiency, is accounting for most of the differences in profit between the two groups of producers. Since DMI is not appreciably or consistently different between profitability groups, this is an indication that there are feed or facilities management problems plaguing the low profitability group.

Summary

Obviously, if you are feeding by-products at substantial cost discounts you can be profitable with ADG and feed/gain values below the benchmarks used here. There will however, still be limits on how much performance may be compromised while maintaining profitability. In contrast, you may know a producer that went broke using all of technology available to maximize performance. Unfortunately, that producer may have done so while letting non-feed costs climb well beyond the 10% window we used here. Our yardage costs was 28¢/d ±2.8¢/d. Some total confinement, automated feeding facilities have true yardage costs as high as 70¢/d. These unique situations cannot be considered directly in this type of an evaluation. Another problem we have seen is that you can buy the technology but if you can't/don't use it properly, it merely drives up expenses. All of the pieces of the puzzle have to work together.

As an individual you probably do some things better than the averages used here and may do something below average. Hopefully, this can serve as a guide to help you choose which area of your operation deserves the most attention today, to improve your bottom line for the next year. For most of us that will be pricing cattle. After that, intakes and feed conversions will have to be addressed. The toughest part about these four factors is that the benchmarks will keep moving. Value based marketing will dramatically affect prices and values of cattle in the future. A feed conversion of 7.9 as used here is

already too high to compete with large commercial feedlots or with your neighbor. Not only the absolute amount but also the uniformity of intake patterns will be changing. Increased availability of by-product feeds will require careful evaluations of cost opportunities. Least cost per ton does not necessarily mean lowest cost of gain.

Conclusions

Competition from other regions is forcing us to tighten up the management of our cattle feeding enterprises. This situation is not going to go away. To maintain our position as cattle feeders we need to look closely at each aspect of our feedlot, find those trouble spots that are robbing our profits and take steps to rectify the problems. For most of us the problems are not that supplement is priced too high or that the veterinarian charges too much for service. Failure to take advantage of all that we know about nutrition and management to hold down feed conversions is a critical point. Production efficiency and market risks are our greatest source of problems. They will continue to be our greatest challenges in the future.

Table 1. Variables to be Included in a Feedlot Enterprise Analysis

Cattle Purchase Cost	Average Daily Gain	Feed Cost
Cattle Sale Price	Dry Matter Intake	Supplement Cost
Feedlot Gain (total)	Feed Conversion	Interest Rate
Carcass Quality	Maintenance Costs	Veterinary Cost
Implants	Death Loss	Yardage

Table 2. Baseline Values Used in ±10% Response Data

Purchase Weight, lb	648
Sale Weight, lb	1143
Feedlot Gain, lb	495
ADG, lb	2.51
DMI, lb	19.74
Feed/gain	7.94
Maintenance Cost, Mcal/kgWt$^{3/4}$	.077
Death Loss, %	.89
Yardage, ¢/d	28
Veterinary Cost, $/head	7.57
Feed Cost, $/T (DMB)	$88
Supplement Cost, $/T	$215
Interest Rate, %	9.5
Implant	One
Purchase Price, $/cwt	79.20
Sale Price, $/cwt	71.40

Table 3. Ranking of Value for a 10% Change in Enterprise Production or Cost. Linear Response Variables[a]

Straightline Variables	± $ Per Head
Selling Price	81.74
Purchase Price	54.50
Ration Cost	17.51
Yardage	5.59
Interest	3.42
Supplement Cost	1.96
Veterinary Costs	.80
Death Loss	.57

[a]*Change in net profit per head from base value*

Table 4. Ranking of Value for a 10% Change in Enterprise Production/Cost. Nonlinear Response Variables[a]

	$ Per Head	
	10% Better	10% Worse
Feed Efficiency	32.21	-42.93
Feed Intake	20.62	-30.75
Daily Gain	15.04	-37.24
Implant Use	15.04	-19.73
Maintenance Energy Costs	8.10	-9.10
Slaughter Weight[b]	-18.71[b]	-31.38[c]

[a]*Changes in net profit per head from base value.*
[b]*Includes 10% increase in YG 4 carcasses at $20/cwt discount.*
[c]*Includes 25% increase in Select carcasses at $10/cwt discount.*

Figure 1. NET RETURN

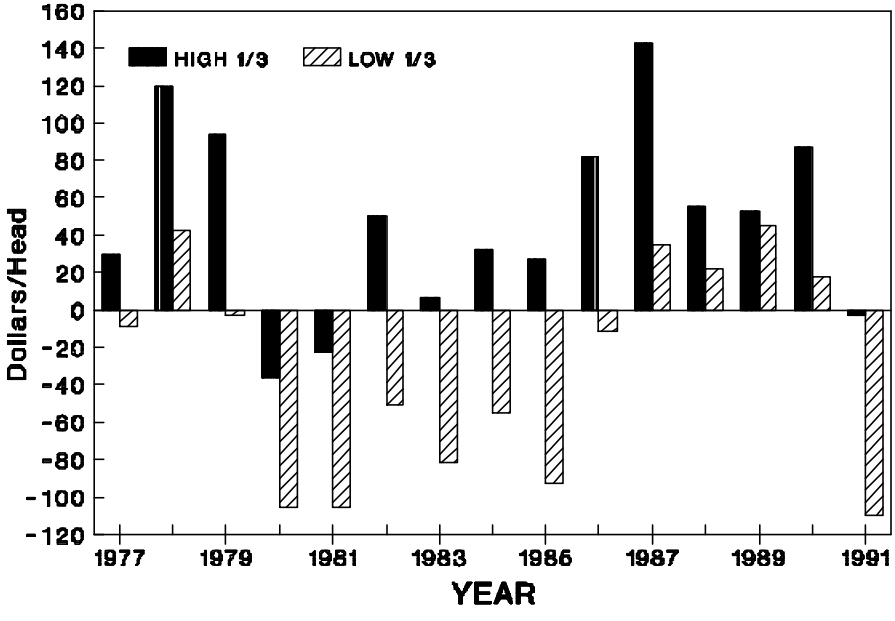

Figure 2. DIFFERENCE IN NET RETURN

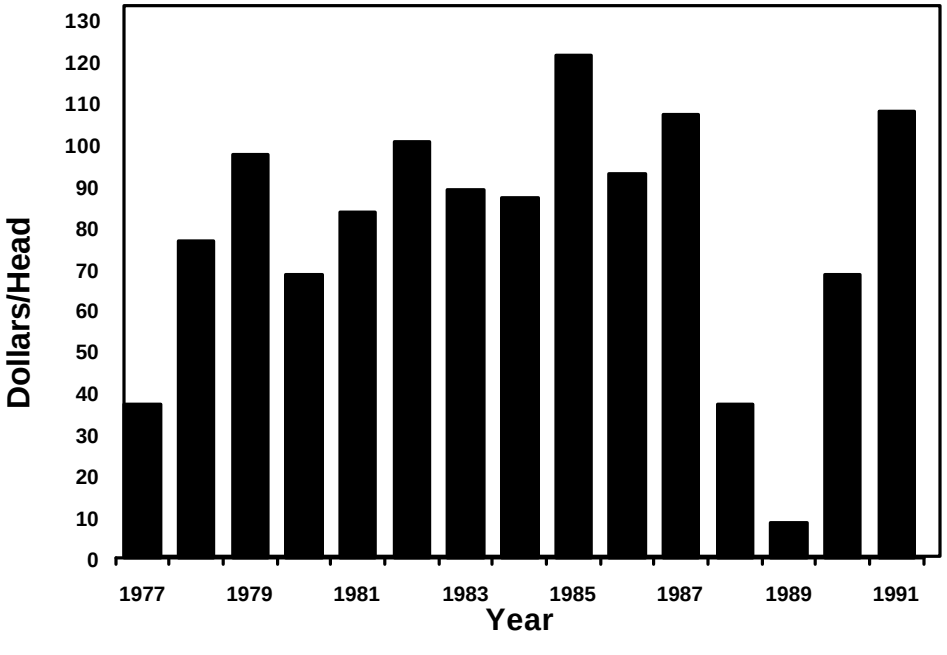

Figure 3. SALE PRICE

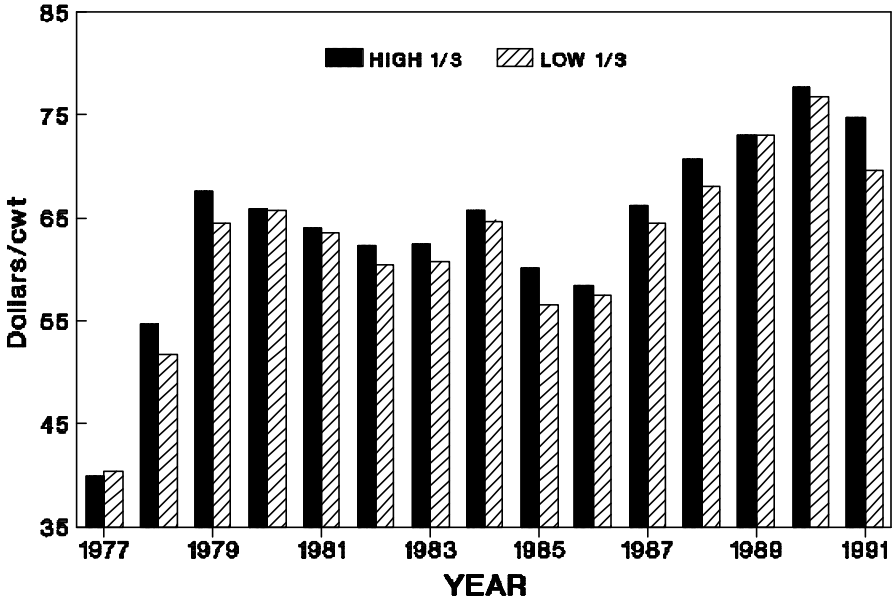

Figure 4. PURCHASE PRICE

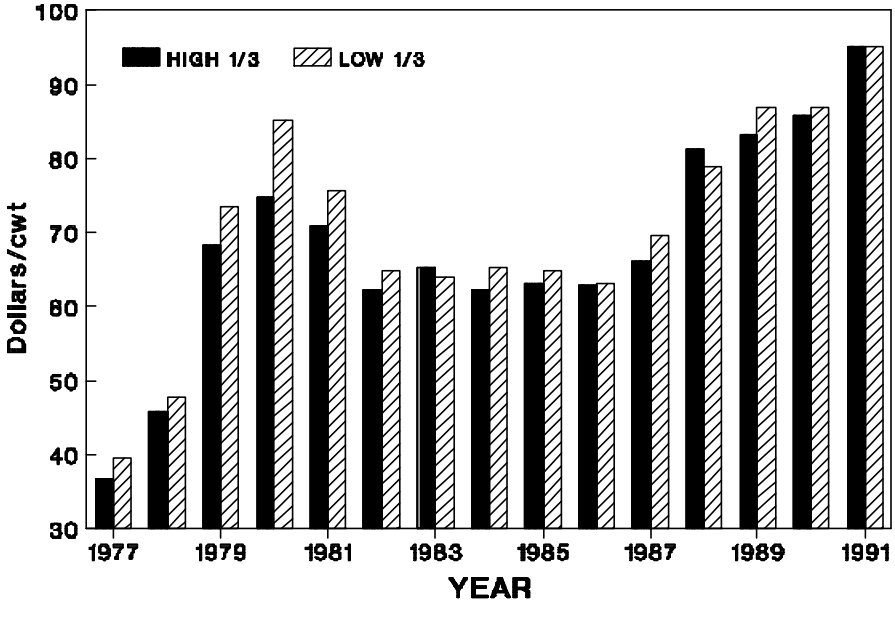

Figure 5. NONFEED COST

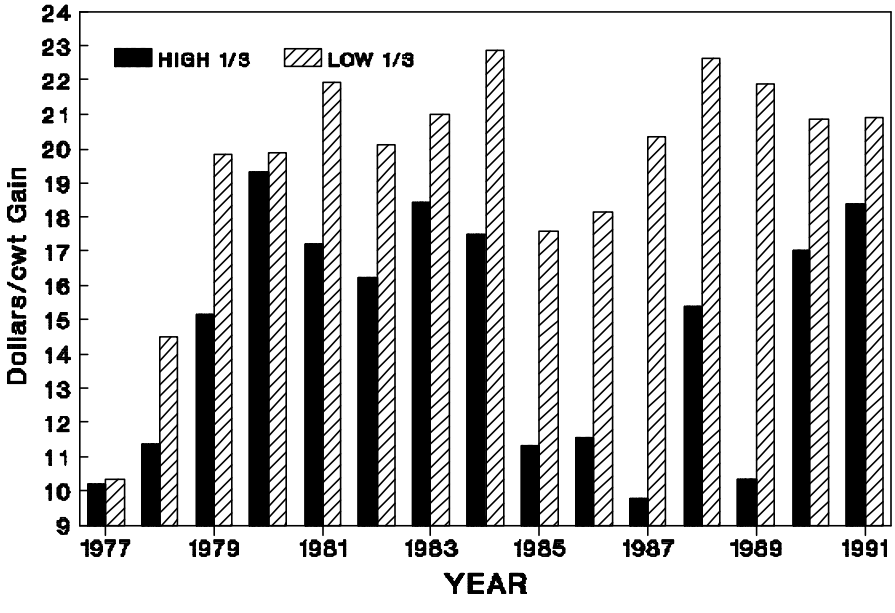

Figure 6. FEED CONVERSION

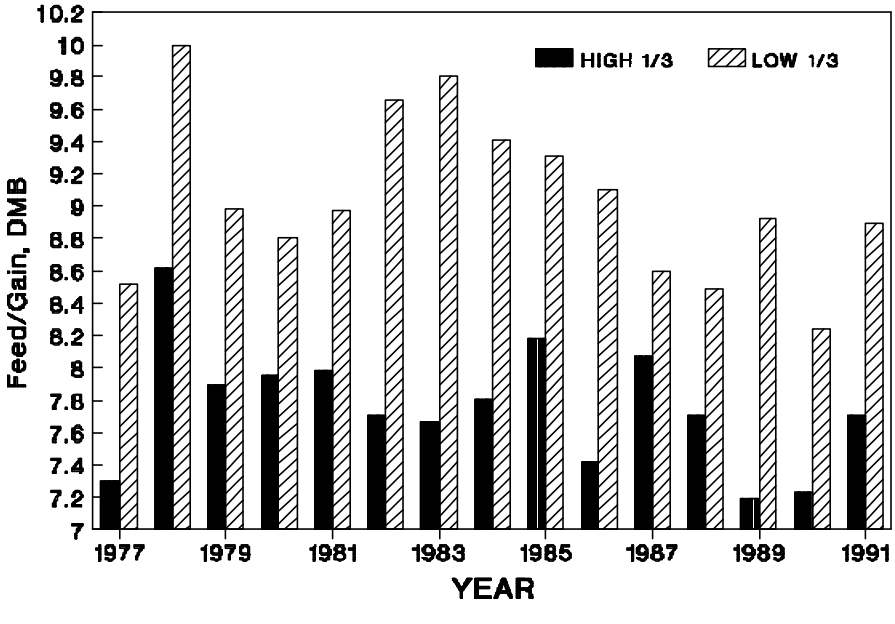

Figure 7. AVERAGE DAILY GAIN

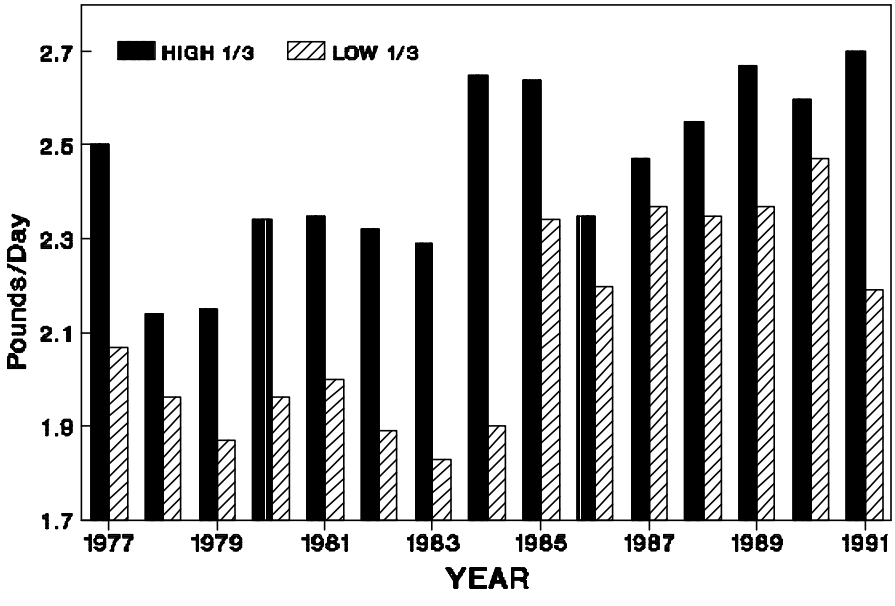

Figure 8. DRY MATTER INTAKE