



## Feeding Natural Cattle

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Some consumers are willing to pay a premium for “natural” beef products from production systems not utilizing implants, ionophores, or antibiotics. Producers marketing to these systems can attain substantial premiums.

The term “natural” as defined by the USDA, is extremely loose, and all fresh beef qualifies as a natural product. However, “natural” is more strictly defined by the marketplace. Claims, which vary from company to company, are regulated by the Food and Drug Administration and must be verifiable.

It is generally accepted that cattle qualifying for natural programs have never received antibiotics or hormones at any time from birth to harvest.

### Purchasing and marketing natural cattle

Expect great variability in price when purchasing “natural” cattle. Feeder calf premiums can range from \$0/cwt to \$15/cwt. At different times of the year, demand for cattle fitting specific natural programs can become extremely competitive.

Programs can be very specific about use of antibiotics or growth implants and even about cattle type. Feeders must be certain that affidavits are signed specifically for the programs in which they are marketing. While natural programs focus on not using antibiotics, growth-promoting hormones, or ionophores, programs exist for all cattle types. These programs include marketing high-cutability cattle (largely Continental breeds) and cattle rewarded for marbling.

In addition to selecting the right type of cattle, feeders should also pay attention to the health of the animals. Calves should be vaccinated for control of respiratory disease, clostridial diseases, and liver abscesses. Vaccines are not antibiotics and are critical to the success of natural feeding programs.

Management on the ranch is key to the success of cattle in the feed yard. If a feeder purchases stressed, mixed calves that have not been adequately vaccinated, they should not be considered for a natural feeding program. Choose only calves that have been properly vaccinated and managed.

### Cost of gain

One of the biggest determinants of profitability is cost of gain. Primary factors affecting cost of gain are feed conversion, average daily gain, and death loss. Cattle performance and feed prices all affect the total feed costs, the largest component of cost of gain. The single largest influence on cost of gain is the price of corn.

The primary performance loss for feeders managing natural cattle is decreased rate of gain and feed efficiency because growth promoting technologies—implants, ionophores, and antibiotics—are not being used. Cost of gain will increase dramatically, and this difference becomes most pronounced when corn prices rise.

Table 1 compares the cost of feeding conventional and natural cattle at two separate diet costs. An increase of

\$20/ton in diet cost (approximately a \$.50 increase in corn price) raised cost of gain by \$.08 per head daily in the natural group and \$.05 per head daily in the conventionally fed group.

Animal health has a significant impact on cost of gain. Cattle qualifying for the natural program can never receive treatment if they become sick. The feeder has two choices: let the animal get over it on its own, which dramatically decreases performance; or treat the animal and remove it from the program.

This emphasizes that success and sustainability in natural programs require producers to maintain detailed health records.

Feeders of natural cattle have identified three costs in removing a calf from the natural program. First is the loss of premium paid for the natural feeder calf that receives treatment and ends up in a conventional program. Second is the opportunity loss of that calf being fed in a natural program, which can be difficult to quantify. And third is the cost associated with performance sacrificed in the natural program. Multiple research experiments conducted at SDSU suggest that non-implanted cattle can be 100 pounds lighter than implanted cattle when marketed after the same number of days on feed.

### **Breakevens**

Breakevens are cattle feeders' benchmarks for profitability. Breakevens are not only affected by cost of gain but are also heavily influenced by purchase price and total weight gained. Increased cost of gain and higher purchase price lead to higher breakeven expenses.

Cattle not receiving implants have poorer feed-to-gain conversions. They will also have a lower final weight, which has a dramatic impact on the breakeven price.

### **Cattle diets**

Formulating diets for cattle in natural programs raises some special issues. Lack of an ionophore in the diet can potentially lead to increased incidence of rumen upset. We recommend that roughage be slightly increased in the diet and that you limit processed grains to decrease the incidence of acidosis. Proper bunk management is a critical component of all cattle feeding programs. With good bunk management, high-grain diets can be fed successfully.

Some research has looked at supplementation with yeast-based additives and direct-fed microbials. This has produced mixed results but may potentially recoup some of the efficiency lost by removing an ionophore from the diet. Costs have been similar to those of an ionophore.

Other research has evaluated increasing the caloric density of the diet with fat to reduce the level of starch available for fermentation. There is evidence that corn germ (16% CP and 20% fat) can replace corn, soybean meal, and monensin in finishing diets without increasing the prevalence of bloat (Pritchard and Boggs 2005).

### **Summary**

Natural beef premiums are associated with higher levels of risk. That risk is primarily found in feeder calf premiums, animal health, feedlot performance, and misrepresentation of cattle. Identifying a market, procuring cattle that have undergone a strict vaccination program, and matching the requirements of specific natural beef programs are critical for success.

Pens of natural cattle will have higher costs of gain because of lower ADG, poorer feed conversion, and removal of cattle due to antibiotic treatment. A higher feeder calf purchase price, lighter final weight, and (or) increased days on feed will also contribute to higher breakeven prices for cattle marketed through natural programs.

Diets fed to natural cattle should include slightly higher levels of roughage and reduced processed feeds to limit rumen upset. Good bunk management is important to the success of this type of program. Diets can be formulated to provide similar levels of performance achieved with diets containing an ionophore.

### **Literature cited**

- Anderson, P. 2002. Death loss in feedlot cattle: how much does it really cost? VetLife Tech Talk. Available: <http://www.vetlife.com/support/techtalks/web/index.html?page=source%2Fhtml%2Fdeath%20loss%20in%20feedlot%20cattle%20%20how%20much%20does%20it%20really%20cost.htm>. Accessed July 11, 2006.
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Table 1. Cost of gain and breakeven price for finishing cattle raised using a conventional or natural program at two diet costs.<sup>1</sup>

	Diet cost			
	\$80 per ton		\$100 per ton	
	Conventional	Natural	Conventional	Natural
Initial body weight	700	700	700	700
Feeder cost, \$/cwt	110	115	110	115
Performance				
Average daily gain, lb	3.6	3.0	3.6	3.0
Feed conversion, lb	6.8	8.0	6.8	8.0
Dry matter intake, lb/d	24.4	25.0	24.4	25.0
Days on feed <sup>2</sup>	153	183	153	183
Costs, \$ per calf				
Feed	149	183	186	229
Yardage <sup>3</sup>	38	46	38	46
Veterinary <sup>4</sup>	10	10	10	10
Implant <sup>5</sup>	9.70	0	9.70	0
Ionophore <sup>5</sup>	3.36	0	3.36	0
<b>Cost of gain</b>	<b>0.38</b>	<b>0.43</b>	<b>0.43</b>	<b>0.51</b>
<b>Breakeven cost</b>	<b>\$78.43</b>	<b>\$82.73</b>	<b>\$80.61</b>	<b>\$86.40</b>

<sup>1</sup> Calculations based on data from Pritchard and Boggs 2005.

<sup>2</sup> Days to reach 1250-lb market weight.

<sup>3</sup> Yardage cost of \$0.25 per head daily.

<sup>4</sup> Cost adapted from industry data with an estimate of 1 to 2 % death loss (Anderson 2002). Cost with natural cattle is indicative of loss for performance, opportunity, and premium paid for cattle removed from program.

<sup>5</sup> Implants (2 @ \$4.85 per implant), Ionophores (\$0.022 per head daily).