

Preconditioning calves has become common practice among cow-calf producers. Preconditioning is the production management process cow-calf producers employ before they sell their calves that prepares the calves for entering the feedlot. Preconditioning practices may include castrating, dehorning, weaning, administering a health program, and adapting calves to dry feed. However, preconditioning programs vary from cow-calf producers vaccinating calves on their own to formal third-party certifications that have specific animal health treatment and weaning protocols.

The expected additional value of preconditioned calves relative to added costs associated with the preconditioning protocol is an important consideration for cow-calf producers. To address this question, a survey was conducted of commercial feedlots to determine how much feedlot operators value calves raised with preconditioning programs and associated certifications of preconditioning.

## Background

When purchased cattle arrive at a feedlot, they routinely undergo a common processing protocol that may include viral, bacterial, and clostridial vaccinations; treating for internal and external parasites; and implanting with growth promotants. This processing reduces chances of animal health problems and increases feed efficiency.

Feedlots prefer to modify their animal processing protocol to reflect the preconditioning program calves may have received. Information about specific animal preconditioning health programs, however, is essential before feedlots can appropriately modify their cattle processing procedures.

In the absence of well-documented animal health programs before feedlot arrival, feedlots follow similar procedures for processing cattle at a given time that can result in undue costs and activities, such as repeating vaccinations, implants, and parasite controls. As such, knowing the health program cattle received before arriving at the feedlot helps the feedlot operator tailor processing appropriately.

Furthermore, who provides verification for health programs of purchased animals is important to

feedlots as they determine the value they are willing to pay for specific preconditioning protocols. For example, informal seller claims of health treatments may be more trusted if those claims are associated with a third-party certification. Health programs that are administered to calves can range from having no audit or assurance to the buyer of the calves, to being assured by the seller, a third-party certifier, or a federal agency such as USDA certification.

In this study, the intent was to determine whether it matters to feedlots who certifies the specified animal health and preconditioning program. Since third-party certification generally includes a fee for the cow-calf producer, in addition to costs of the health program protocol and added management and labor, determining the value of certification is important.

In addition to health program verification assurances and differences in who certifies associated claims, age and source verification programs are also of growing interest. In particular, age and source verification claims are core to many of the most popular process verified programs facilitated by USDA. Being able to document beef is derived from animals younger than a certain age is an increasingly common requirement of market access in global beef trade.

## Methods

To determine how much feedlot operators value certified health preconditioning programs, a survey was conducted of commercial feedlots. The survey was mailed in February 2011 to 591 cattle feedlots across the United States using the population of feedlots contained in 2011 BeefSpotter with indicated capacities of 100 head or more.

A total of 171 responses were received (28.9 percent response rate) and 159 responses were complete and used for analysis. Questions were asked of the feedlots regarding demographic information and experience of the operator, feeder cattle purchasing practices, and fed cattle selling methods. In addition, a set of questions was asked regarding perceptions about the influence of various preconditioning feeder cattle health programs on cattle feeding

efficiency. Finally, a set of questions used to estimate the amounts feedlot operators were willing to pay for various animal health preconditioning programs and certification methods was presented.

### Respondent Data

Summary statistics of the survey respondents are reported in Table 1. The typical respondent had between 20 and 40 years experience feeding cattle. The feedlot operators indicated that, on average, 23 percent of their feeder cattle purchased in 2010 had an identified health program associated with them. This

varied considerably as 22 percent of respondents indicated that they did not purchase any feeder cattle in 2010 that had an identified health program, 30 percent indicated that they purchased between 1 percent and 10 percent of their calves with such a program, and at the extreme, 9 percent purchased all of their feeders with a specified health program (Figure 1).

The feedlot operators custom fed an average of 30 percent of their cattle (Table 1). Of cattle owned by the feedlot, the leading sources of those cattle were local auctions, direct from the seller, and video auctions. The feedlots sold mostly (79 percent of

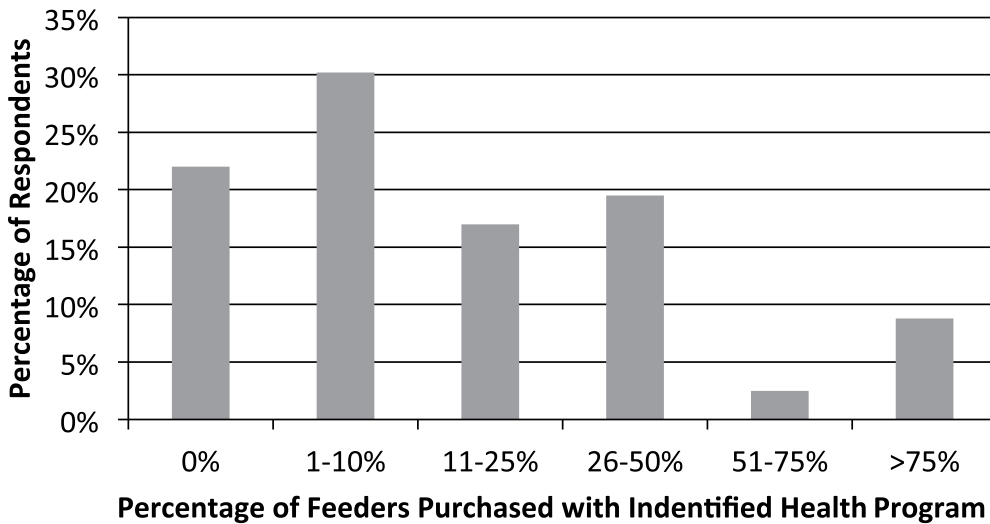
**Table 1.** Summary Statistics of Feedlot Operator Survey Respondents (N=159)

	Avg.	Std. Dev.	Min.	Max.
Operator Age (years)	53.8	13.1	19	86
Years Experience <sup>a</sup>	4.5	1.3	1	6
Education <sup>b</sup>	2.6	0.9	1	4
Feeder Cattle Purchased with Identified Health Program in 2010 (%)	22.6	26.7	0	100
<b>Feeder Cattle Purchase Methods (2010)</b>				
Custom Fed, Not Purchased (%)	30.0	34.0	0	100
Local Auctions (%)	28.9	30.2	0	100
Video Auctions (%)	10.0	18.9	0	100
Direct from Seller (%)	23.4	28.9	0	100
Home Raised (%)	2.9	7.5	0	50
Other (%)	4.7	15.2	0	90
<b>Fed Cattle Marketing Programs (2010)</b>				
Conventional Fed Cattle (%)	78.7	28.4	0	100
Age and Source Verified (ASV) (%)	16.4	23.6	0	100
Non-Hormone Treated (NHTC) (%)	1.0	5.0	0	50
Naturally Raised (%)	3.2	13.0	0	100
Organically Raised (%)	0.0	0.0	0	0
Other (%)	1.2	10.9	0	100
<b>Fed Cattle Marketing Methods (2010)</b>				
Live Weight Negotiated (%)	39.3	41.7	0	100
Live Weight Formula (%)	3.4	11.7	0	100
Dressed Weight Negotiated (%)	21.9	36.8	0	100
Dressed Weight Formula (%)	10.8	27.2	0	100
Grid (%)	23.8	36.5	0	100
Other (%)	0.9	8.0	0	97

<sup>a</sup> Years experience are coded 1=<5 years, 2=5 to 9 years, 3=10-19 years, 4=20-29 years, 5=30-39 years, 6=40 or more years

<sup>b</sup> Education is coded as 1=not attended college, 2=attended college, no bachelor's degree, 3=bachelor's degree, 4=graduate or professional degree

**Figure 1.** Distribution of Percentage of Cattle that Survey Respondents Purchased in 2010 that had an Identified Health Program.



cattle) conventionally fed cattle that were not being fed with a natural or non-hormone treated program. Source and age verified cattle represented 16 percent on average of fed cattle marketings by respondents in 2010. The dominant fed cattle selling method was live-weight negotiated with 39 percent of cattle on average, followed by grids with 24 percent, and negotiated dressed weight at 22 percent.

The feedlot respondents represented mostly large commercial feedlots as only 5 percent of respondents had annual marketing in 2010 of fewer than 1,000 head. More than 60 percent of respondents had 10,000 head or more of fed cattle marketed in 2010 (Table 2). The majority of respondents were from the High Plains region (51 percent) followed by the Cornbelt (37 percent) (Table 2).

*likely* to have lower morbidity and mortality, better feed efficiency and daily gain, and are *likely* to cost more when purchased as feeders. In general, feeders are *neutral* about whether feeders having an identified health program will have better dressing percentage, yield grade, or quality grade, or receive a higher price when sold as fed cattle.

To determine how much feedlot operators are willing to pay for preconditioning health programs and whether who certifies the health program affects its value, this study used a procedure referred to as a choice experiment. The choice experiment presented a lot of 100 head of healthy 650-pound black-baldie medium-framed uniform feeder steers for sale to the feedlot operator. Across each lot the price and a set of lot attributes that were evaluated were varied.

The survey respondents indicated which pen of cattle they prefer in each choice set. Across choice sets,

## Results

The feedlot operators were asked a set of questions regarding what they perceived to be the advantages of feeding calves that had received an identified health preconditioning program. The questions were presented with Likert-scaled responses ranging from 1=*very unlikely* to 5=*very likely*. Results of the questions are presented in Table 3.

Respondents indicate cattle having identified health programs before entering the feedlot are

**Table 2.** Size and Location of Feedlots Responding to Survey

	Annual Marketings (Head)			
	< 1,000	1,000-9,999	10,000-49,999	50,000 +
Percentage of Respondents	5	32	40	23
	Feedyard Location <sup>a</sup>			
	Cornbelt	High Plains	West	
Percentage of Respondents	37	51	12	

<sup>a</sup>Cornbelt includes states of Iowa, Ill, Ind, Minn, ND, Neb, SD; High Plains includes states of Colo, Kan, Okla, Texas; West includes states of Ariz, Calif, Idaho, Mont, NV, Ore, Utah, Wash, Wyo

**Table 3.** Responses to “Compared to feeder cattle raised without a specific identified health program, how likely are feeders that have had a verified health program to have:”

1=Very Unlikely, 2=Unlikely, 3=Neutral, 4=Likely, 5=Very Likely

Attribute	Responses	Most Common Response	Average Response	Standard Deviation
Lower Morbidity	158	4	4.13 <sup>a</sup>	0.85
Lower Death Loss	158	4	4.20 <sup>b</sup>	0.84
Better Feed Efficiency	158	4	3.96 <sup>c</sup>	0.73
Better Daily Gain	159	4	3.94 <sup>c</sup>	0.73
Better Dressing Percentage	158	3	3.35 <sup>d</sup>	0.81
Better Yield Grade	158	3	3.31 <sup>d</sup>	0.78
Better Quality Grade	159	3 & 4	3.67	0.80
Higher Cost when Purchased	159	4	4.18 <sup>ab</sup>	0.82
Higher Price when Finished	159	3	2.86	0.97

Averages sharing the same superscript are not statistically different from each other 0.05 level.

the attributes that the experiment specifically varied were price, indicated health program, who certified the health program, and whether the cattle were source and age verified. Through statistical analysis of the feedlot operator responses to the choice sets, it was determined how much, on average, they value each attribute. Such choice sets are meant to mimic an actual feeder cattle purchasing decision for the feedlot operator and therefore to result in more reliable estimates valuing the attributes than questions that ask the responded their willingness to pay directly for individual traits.

The choice experiment was set up to value three different calf health programs relative to a lot that did

not have a health program identified. The specific preconditioned health programs were:

**Health Program A:**

- vaccinated against respiratory (viral and bacterial) and clostridial/blackleg
- treated for internal and external parasites
- no weaning claim

**Health Program B:**

- Same as *Program A* but weaned for at least 30 days

**Health Program C:**

- Same as *Program B* but weaned for at least 45 days

**Table 4.** Willingness-to-Pay Estimates (\$/cwt) for 650 lb. Feeder Steer

Attribute	Lower 95% Confidence Interval	Point Estimate	Upper 95% Confidence Interval
Health Program A (vs. None)	-0.33	1.93	4.18
Health Program B (vs. None)	5.69	7.28	9.25
Health Program C (vs. None)	10.58	12.15	14.20
Age and Source Verified (Yes vs. No.)	4.36	5.84	7.36
3rd Party Certified (vs. Seller Claim)	-0.38	0.85	2.19
USDA Certified (vs. Seller Claim)	0.94	2.37	3.70

The study also assessed how the source of the health program certification affected feedlot operator valuation. Three different sources were evaluated that might certify the health program presented:

- The seller of the calves with no USDA certification
- A third party (e.g., veterinarian, pharmaceutical company) without USDA certification
- A third party that is certified by the USDA for the program verification

Statistical analysis of the choice experiment responses revealed the premium feedlots were willing to pay for each attribute. Estimates of willingness to pay for the specified attributes are summarized in Table 4. Feedlots were willing to pay on average \$1.93 per hundredweight more for calves that were treated with *Health Program A* compared to those without a health program. This suggests that on average, calf vaccination programs (as described in Program A) have value to feedlots. Without a weaning claim present, however, the value is less than the other health programs.

*Health Program B* differed from *Program A* only by the weaning claim. For *Health Program B* the cattle had the same described vaccination program (vaccinated against respiratory (viral and bacterial) and clostridial/blackleg and treated for internal and external parasites) as *Program A*, but they were also weaned for 30 days. Feedlots indicated an estimated willingness to pay \$7.28 per hundredweight for *Health Program B* relative to no health program feeder cattle. The implication of these two health programs is that the value of being weaned for 30 days is about \$5.35 per hundredweight (\$7.28 - \$1.93).

*Health Program C* was identical to *Program B* except the calves were weaned for an additional 15 days in *Program C*. Feedlot operators were willing to pay \$12.15 per hundredweight for *Health Program C* cattle relative to those without a health program. This suggests that 45 days of weaning together with a health protocol have considerable value to feedlots compared to unweaned calves without a health program claim.

The cattle health program that was verified by a third party (for example, a veterinarian or a

pharmaceutical company) was worth on average \$0.85 per hundredweight more than if the cattle seller alone made the health program claim. This indicates there is value to feedlots in addition to trust of a third party verifying the health program claim. Furthermore, USDA certification of the health claim had an estimated \$2.37 per hundredweight premium relative to a cattle seller claim. Feedlots have even more trust overall in USDA certified claims than those of third parties. Cattle that are age and source verified were worth an estimated additional \$5.84 per hundredweight to feedlots compared to cattle that were not source and age verified.

## Conclusions

Feedlots want cattle that have been weaned and preconditioned with an identified health program that is certified by a credible third party, preferably the USDA. Cattle that are raised under such programs are expected to experience greater feed efficiency in the feedlot and as such have additional value to the feedlot relative to cattle that are not weaned and have not had a certified health program. The results indicate that weaning is worth at least \$5 per hundredweight and when bundled with an identified health program, the two can be worth \$7-\$12 per hundredweight to the feedlot. If the USDA certifies the preconditioned health program, feedlots on average value that certification alone to be worth at least another \$2 per hundredweight.

An important note in interpretation of these results is that the estimates reported here were completed during February 2011 when 650 feeder steer prices were trading at about \$140 per hundredweight. When feeder prices are lower, these estimates likely would decline accordingly and vice versa if general prices were higher. Also, the pens of cattle offered to the feedlots were hypothetical in that no real money or cattle traded hands. This could result in the estimated values reported here being higher than what one might realize in a typical auction market setting. The estimates are not, however, out of line with what auction market data has revealed for things such as weaning and age and source verified, so the estimated values are likely not far out of line with potential market values.

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