Source Verification of Beef Cattle
The DATALINE Program

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Abstract

DATALINE allows every segment of the beef industry chain to source verify the product throughout development. This electronic connection adds accountability to the CHAPS beef cattle network securing needed data for cow-calf producers. This data completes a circle of communication and gives the cow-calf producer the knowledge to make management changes which affect profitability, improve product quality and insure consumer safety.

Introduction

The beef industry is changing, whether we like it or not. Individual producers need to be aware of the processes that are involved in order to initiate changes that would assist long term profitability in the beef business. The commodity model, although very prevalent in the marketing sector is slowly giving way in the cow/calf sector to a model loosely termed "premium market" identification. A more accurate term would be "verified source" identification, with the implication of total knowledge from "conception to consumption." These new total marketing packages do require that the market demands certain standards. Standards which can only be met through information; collection of specific cattle performance data, and the use of that data in making long-term management decisions.

The food industry is changing, and cow/calf producers are becoming aware of their role in the food chain. This awareness is driven by consumer demand for consistent quality and information about the type of food consumed

today. Within the past four years, allegations of tainted food and questions about quality have been driving cow/calf producers to make rapid advances in the area of source verification. Source verification will become a business reality of the food production chain. Cow/calf producers are seeking more information about their end product and the industry is identifying critical control points through a process called Hazard Analysis Critical Control Points (HACCP). This combination of HACCP and source verification, if implemented correctly will allow both the food industry and beef business to better evaluate critical industry production concerns and activate appropriate managerial responses from "Conception to Consumption."

Source verification and the DATALINE program are new ways of initially pulling together some old concepts and new technology to give the beef industry new clout. Basically, DATALINE allows data collection from birth to carcass. Information is collected along the way that helps relate physical and economic performance of each animal to the end product. This technology makes it possible to electronically identify each calf as part of the food chain network and secure data relative to growth, health and value. Thus, as the beef industry changes, individual producers can become aware of the processes that are involved in order to initiate changes that assure long term survival in the beef business.

Procedure

DATALINE is an outgrowth of the Cow Herd Appraisal Performance Software (CHAPS) program developed by the North Dakota Beef Cattle Improvement Association and North Dakota State University Extension Service. CHAPS and DATALINE programs have made it possible for cow-calf producers to allow a complete throughput of information from the beginning (conception) to the end (retail harvest). The CHAPS program requires producers to record and keep secure the data collected from conception to weaning. This collection of data may include, but is not limited to, cow and calf identification, calving date, sire identification, breeding date, weaning date and weaning weight. DATALINE then continues the individual animal data profile, completes health immunization and treatment records, and track the animal up to the carcass endpoint. This tracking is made possible by the establishment of alliances throughout the industry.

Specifically, any current or future CHAPS cow-calf producer can enroll steers or heifers born during the current year. Enrollments are limited to truck load lots of approximately 48,000 pounds in which calves need to be of like quality,

weight, sex, and age. Calves with a weight variance of more than 300 pounds and age difference greater than 90 days are not considered of like weight or age. Producers unable to fulfill load lot requirements may co-op with other producers, however cattle represented in this fashion are accounted for on a percentage basis. Producers who co-op are responsible for calculating individual animal cost and return allocations above and beyond the load lot percentage basis when load lots are represented in a co-op fashion.

Minimum data required includes beginning CHAPS records. Data required for the CHAPS program when used in conjunction with the DATALINE program are, cow identification, cow age, calf identification, and calf birth date. Individual weaning weight is not required. DATALINE compiles data from records provided by the participating producer's CHAPS records, backgrounding records, and electronically incorporated individual feedlot performance along with individual carcass data. Minimum feedlot performance includes, but not limited to, weight on feed, final weight, average daily gain, and estimated feed efficiency. Minimum carcass data provided includes carcass weight, USDA Yield and Quality Grade, and conformity score.

Participants may retain full ownership or sell a percentage of the load lot. The individual is responsible to negotiate pricing and ownership percentage of the load lot being offered with the individual feed yard. Cattle appraisal and brand inspection services are encouraged through local livestock marketing organizations. The responsibility of trucking depends on the individual producer and the feed yard arrangements.

The DATALINE program requires $1 per head enrolled in the project. Cost incurred on the CHAPS program of $.50 per cow/calf record are also charged. The feed yard in combination with the packer may charge up too but not to exceed $10 per head to cover costs incurred such as, electronic tagging, ultrasound scanning, sorting, individual weighing, carcass data retrieval. This $10 per head will be allocated based on the percentage of ownership retained in the load lot (ex. 25% ownership retained $2.50).

Minimum health requirements for calves enrolled include 7-way Clostridial and 4-way Viral vaccinations, prior to weaning (minimum of 2 weeks). Booster vaccinations are required for the 7-way Clostridial and 4- way Viral at the time of weaning. Hemophilus somnus and Pasteurella vaccinations are optional depending upon feed yard requirements. Herd health and vaccination verifications are required from a consulting veterinarian.

All participating feedlots require calves to be weaned and on feed for a minimum of 30 days. Custom backgrounding facilities may be utilized, but is the responsibility of the party enrolling calves on the DATALINE program to make these arrangements. Cattle for co-op load lots are required to load at a common loading facility.

Finished cattle are priced on a value-based grid selected by the feed yard that best represents the cattle. The base price is generally established from the prior marketing week, with Yield or Quality grades differences receiving premiums or discounts on the grid. Several different packing companies and associated grids will be utilized depending upon feeding location.

The first set of cattle through the DATALINE program were three loads of cattle from the Dickinson Research Extension Center (DREC). On November 11, 1996, 76 steers and on December 3, 1996, 91 steers and 67 heifers were shipped to Decatur County Feed Yard Inc. at Oberlin Kansas. These cattle were handled in accordance with all DATALINE health and preconditioning requirements. Calves were of mixed breeding from the DREC herd and were sired by Angus, Red Angus and Charolais bulls. The minimum CHAPS data was available for all calves, in addition, individual sires were recorded for Angus sired calves. These sires are listed in . All calves were sent with the exception of Angus and Red Angus heifers and calves with recent health problems.

Results And Discussion

The purpose of CHAPS and DATALINE is to accumulate a data base that adequately describes the producer's cattle and then allows that producer to make necessary genetic and management changes within the operation as needed. The operation's goals must also be set and reviewed throughout this process. Not all cattle are intended to be managed the same. However, all cattle must ultimately be consumers' acceptable. The first step is to document pre-weaning and weaning performance of any set of calves. The weaning performance of all calves shipped to Decatur is presented in . The calves sent had acceptable growth rates however are smaller framed cattle (4.7 vs. 5.7) than typical within the North Dakota CHAPS cattle. This also results in less pre-weaning gain for this set of calves compared to typical North Dakota calves. These growth rates are acceptable for this herd of cattle when combined with overall reproductive performance. However, increased growth rates would be advisable in the future.

The real question for most North Dakota producers, "Are these cattle acceptable to the industry?". Although this data

is very preliminary, andinitiate an answer to that question. The DREC now has initial base line data that represents the type of cattle produced at DREC. gives the carcass characteristics of these cattle. Compared to the 1995 beef cattle quality audit, these cattle are slightly smaller and less muscled, but produce a higher quality carcass. These results would indicate that this set of cattle, unless changed would fair better in a price grid with increased advantage on quality than on lean. The feedlot performance is shown on , and serves as the initial benchmark values for overall feedlot performance for this herd. Values to compare to are presently not available.

Genetic changes could be initiated from the initial years data, with caution. The performance of the different Angus sires is similar. Pre-weaning growth rate and frame was similar for all sires with the exception of the cleanup sire (). and would indicate the same trend. In general, the performance of the cleanup sire was inadequate pre-weaning, in the feedlot and on the rail. This bull lost money. Dollar wise, the question should be asked if more dollars would have been generated selling the cows as open than maintaining cows conceived to this bull in the herd. Early trends would indicate some differences in feed efficiency and carcass traits resulting in $25 dollar spread in market adjusted net return (and) among the different AI bulls. Additional calves will be produced to build the data set and increase the confidence in the baseline data.

Managerial questions that remain to be answered include, but are not limited to, "Were the calves weaned at the right age?", "Were the calves backgrounded for the right number of days?", "Should the calves be fed at a greater rate of gain or were they at their maximum?", and "Did net return change as hot carcass weight, yield grade and quality grade changed?". These and other questions will be explored as the data base grows and hopefully these answers will result in a positive net return back to the operation.

In conclusion, these cattle were source verified back to the cow/calf operation and the resulting weaning, feedlot, carcass and health data returned started a benchmark data set for the operation. These cattle do represent cattle that are in the ball park relative to the current beef industry.

Implications

Most producers' concerns are economically driven. DATALINE becomes the vehicle which serves up more than economic opportunity. Outside of a direct government mandate, economic opportunity is the driving force to source

verification. Source verification is what consumers are seeking and the overall outcome is that DATALINE allows producers to withstand the volatility of the beef industry. Cow/calf producers will have the assistance in establishing and completing a professional database which includes herd performance records from conception through the carcass, sire and dam production records to better evaluate genetics and improved health systems.

A well documented and defined herd health program for feedlot cattle allow the feedlot operator to better document health records, avoid treatment residues and reduce treatment site blemishes. These same advantages carry on through the packer improving product quality and increasing marketability. DATALINE actually provides a model for a future producer motivated change.

DATALINE allows every segment of the beef industry chain to source verify the product throughout development. This electronic connection adds accountability to the CHAPS beef cattle network securing needed data for cow-calf producers. This data completes a circle of communication and gives the cow-calf producer the knowledge to make management changes which affect profitability, improve product quality and insure consumer safety.

Table 1. Name, number and treatment type of angus sires used during 1996 breeding season.

Sire	Registration Name	Registration Number	Treatment
12	Landmark Bando 912	11270134	AI
132	Papa 8810 Hero 0915	11451945	AI
155	Summitcrest Traveler X044	11121512	AI
1445	Ironwood Impact PP022	11402007	AI
336C	NDSU Northlander 08B1	11793344	Cleanup

Table 2. Weaning performance of angus sired steers and heifers versus DREC herd and North Dakota averages during 1996.

Sire	N	Birth Weight	Wean Weight	Adjusted 205 Days Weight	Average Daily Gain	Weight per Day of Age	Age	Frame Score
127	25	86	556	555	2.0	2.4	230	4.5
132	16	76	550	555	2.1	2.4	231	4.4
155	19	79	546	553	2.1	2.4	225	4.4
1445	30	80	557	564	2.1	2.5	224	4.3
336C	11	71	417	502	1.8	2.2	195	3.7
Herd Average	296	88	522	559	2.1	2.6	205	4.7
North Dakota	18415	89	533	576	2.3	2.7	200	5.7

Table 3. Steer feedlot performance of angus sired calves in 1996 versus angus and DREC herd averages.

Sire	N	Receiving Weight	Final Weight	Feedlot Average Daily Gain	Days on Feed	Feed Efficiency	Age at Harvest	Mkt Adjusted Net Return $[a]
127	10	700	1126	2.9	147	6.62	417	33

132	8	642	1081	3.1	144	6.01	415	55
155	11	681	1060	2.9	131	6.35	401	48
1445	15	642	1103	3.2	146	5.84	413	58
336C	4	532	984	2.7	174	6.33	421	-21
Angus Average[b]	53	650	1078	3.0	143	6.16	408	42
Herd Average	159	623	1110	3.1	158	6.13	405	41
Decatur	10488	641	1137	3.1	160	620	na	34

a The standard values used in the market-adjusted profit calculations per cwt were: Commodity Hot Carcass Average Price - $106, Choice/Select Price Spread - $8, Standard Grade Discount form Select -$4, Prime Grade Premium from Choice -$4, Discount for Heavies and Lights - $10, Discount for Dark Cutters -$15, Premium for Yield Grade 1 -$6, Premium for Yield Grade 2 -$3, Premium/Discount for Yield Grade 3 -$0, Discount for Yield Grade 4 -$15, Discount for Yield Grade 5 -$25, Fixed Price for Utility Grade and Lower -$70.

b Herd average for Angus sires used at the Dickinson Research Extension Center

Table 4. Carcass characteristics of angus sired calves in 1996 versus angus, DREC herd, NBQA averages.						
Sire	N	Hot Carcass Weight	Rib Eye Area	Final Yield Grade	Quality Grade[a]	Market Adjusted Net Return $[b]
127	10	712	13.1	2.4	2.4	33
132	8	694	12.1	2.5	2.5	55
155	11	681	12.2	2.6	2.6	48

1445	15	705	12.8	2.3	2.3	58
336C	4	603	11.0	2.3	2.5	-21
Angus Average[c]	53	686	12.3	2.4	2.3	42
Herd Average	159	707	12.5	2.3	2.5	41
Decatur	10488	724	na	1.8	2.5	34
NBQA[d]	na	748	12.8	2.8	3.0	na

a Quality Grade 1=Prime 2=Choice 3=Select 4=Standard 5=Non-Conformity

b The standard values used in the market-adjusted profit calculations per cwt were: Commodity Hot Carcass Average Price - $106, Choice/Select Price Spread - $8, Standard Grade Discount form Select -$4, Prime Grade Premium from Choice -$4, Discount for Heavies and Lights - $10, Discount for Dark Cutters -$15, Premium for Yield Grade 1 -$6, Premium for Yield Grade 2 -$3, Premium/Discount for Yield Grade 3 -$0, Discount for Yield Grade 4 -$15, Discount for Yield Grade 5 -$25, Fixed Price for Utility Grade and Lower -$70.

c Herd average for Angus sires used at the Dickinson Research Extension Center

d 1995 National Beef Quality Audit