

Improvement In Calf Predictability Through Management

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The beef industry doesn't really need a predictable calf. What the industry needs are pens of cattle that are uniform and that will perform in a consistent and predictable fashion as a group. A fast gaining steer in a pen of slow gaining steers is not an asset. By the time the pen is shipped to the packer the single fast gaining steer will probably be too fat and too heavy. The ideal situation, of course, is to produce pens of fast gaining, efficient, quality cattle.

Genetic selection and designed crossbreeding systems are the first steps in producing predictable cattle. The heritability of a trait like weight gain is in the .30 to .40 range. This means that 60% - 70% of the variation is due to environmental factors and/or management. This paper will focus on some of the management practices that can improve the consistency and predictability of calves.

Management practices should be driven by economics. The producer who sells feeder calves needs to look at management practices that can net additional dollars at sale time. Maximum gain or maximum price does not always correspond with maximum net return. One place to start this topic is to look at what buyers are paying for at feeder cattle markets. A study of feeder calf prices in Kansas auction markets that includes data on 17,121 lots consisting of 138,027 head (Schroeder, *et al*, 1988) and a study of Georgia teleauction sales of 1,369 lots from 1977 to 1988 (Turner *et al*, 1992) sheds some light on what the buyer wants.

Uniform, predictable groups of cattle are needed in the feedlot. In the Kansas study, uniform groups of 45-50 head received a \$6.50/cwt premium over single head lots. In the

Georgia study, price increased as lot size increased. A simple management practice for the large producer is to spend some time sorting truck load lots into uniform groups, whether he sells the calves or retains ownership through the feedlot. For the smaller producer, production of a uniform calf crop that can be sold as a group or grouping calves with other producers are ways to increase market value.

A uniform group of cattle means a narrow weight range, which usually means similar age. This means a relatively short breeding and calving season. Table 1 shows the average weight differences due to extending the breeding season (Triplett, 1982). The problem with such calculations is that they assume the same number of cattle will be bred across the entire breeding season. In order to have a short breeding season, conception rates must be high in the early part of the breeding season. This means that nutritional management of the cow herd is critical. Economic evaluation of different length breeding seasons (Werth, *et al*, 1991) indicates that the optimum length season depends on first service conception rates. If cows are cycling at the beginning of the season, naturally a short breeding season is economically advisable. Breeding seasons 45 to 60 days will not work for everyone. For some the added feed and management costs required to boost first service conception rates will be too great. While short breeding seasons help make the calf crop more uniform, the shortest season is not necessarily optimum.

There are some very simple management practices that will make cattle more consistent with what buyers want. Castration and dehorning are two examples. In the Kansas

study, horned calves were docked about \$.50/cwt. Based on a limited amount of data the Georgia teleauction study showed about a \$1.75/cwt premium for groups of dehorned cattle. The effect of castration on price was not included in these studies. As a general rule, bull calves and steer calves sell for about the same price at 200-300 pounds. As they get heavier the price advantage for steers increases.

An Iowa study (Peterson, et. al., 1989) looked at the effects of castration, dehorning, and vaccination at various times. Calves that were castrated, dehorned, and vaccinated four weeks prior to weaning gained 28 pounds less than those that were weaned without treatment. However, calves that were castrated, dehorned and vaccinated at least 10 weeks prior to weaning were able to recover from the stress and show weaning weights similar to the non-treated calves. Producers who do not castrate at birth, should work calves at 2-4 months of age to castrate, dehorn, and vaccinate for Clostridial diseases (blackleg, etc.).

Maintaining the health of cattle also makes them more predictable. In Table 2 the effects of health problems are shown for steers in the Texas Ranch to Rail Program (McNeill, 1993). Steers that were pulled for treatment in the feedlot netted \$91.23 less than those that did not get sick. For the cattleman who retains ownership, it does not take much reduction in the number of sick cattle to justify efforts to improve health. Is there an economic incentive for the producer who sells feeder calves to worry about vaccination programs? The Kansas study indicates that there is certainly an economic incentive to deliver a fresh, healthy looking calf to an auction market. Stale looking steers were docked about \$4.60/cwt. Sick steers were docked \$19.52/cwt. Bad eyes cost \$10.03/cwt and lame cattle were docked \$19.14/cwt. In Georgia teleauction sales, groups of calves that had been vaccinated for specific diseases received an average premium of \$1.21/cwt.

Respiratory disease complex has been estimated to account for 70% of sick pulls in feedlots and 90% of death losses for stocker and background cattle (Thornsbury, 1991). This typically begins as any one of several viral infections that progress to pneumonia. Vaccination for respiratory diseases 30 days prior to weaning can reduce problems after cattle are shipped. If cattle are retained, this is worth the effort. With direct sales or group sales where the buyer knows the cattle have been vaccinated, premiums should be expected.

Reducing stress on cattle during shipping and handling also helps to reduce sick pulls when cattle enter the feedlot. Table 3 shows typical shrink that can be expected under various conditions (Gay, 1982). While getting farm fresh cattle into feedlots is an advantage for the buyer, minimizing stress during handling is also beneficial to the seller. Reducing stress by reducing the amount of time spent in handling, holding and transporting cattle reduces shrink. Since cattle are sold by weight, they need to be as fresh as possible when they cross the scale.

Implanting calves is one management practice that is predictable and pays consistently. A review of over 140 implant studies indicates that implants increased steer gains by approximately 14% and feed efficiency by 8% (Thornsbury, 1991). For the cow-calf producer an implant given when calves are vaccinated at 2-4 months of age should increase the value of the calf at weaning by \$15-20. Some products can be used at birth.

Control of parasites is another factor that contributes to production of predictable cattle. Control of internal parasites in the cow herd can contribute to higher weaning weights. Increased gains and feed efficiency have resulted when feeder and stocker cattle were dewormed (Hawkins, 1993). In a summary of 5 studies, horn fly infestation of cows affected preweaning gain by from 0 to 0.13 pounds per day (Byford, et. al., 1992). For any of the internal or external parasites economic losses are related to level of

infestation. In Florida it is safe to assume that levels will be high.

To this point the term preconditioning has not been used. Preconditioning has been defined in various ways through the years. In general, it is presale management that is designed to reduce stress and sickness in feeder cattle. Most of the management practices discussed to this point, such as castration, dehorning and vaccinations, would be integral parts of a preconditioning program. The other components of most preconditioning programs are to wean calves and teach them to eat. Does preconditioning pay? Probably not if it involves feeding high grain creep feed. Peterson *et. al.*, (1989) showed preconditioning programs in Iowa to cost considerably more than the premiums buyers were willing to pay. In the Georgia teleauction study preconditioned calves received a premium of \$1.72/cwt. For the producer who retains ownership, weaning calves and teaching them to eat before they are shipped can reduce sick pulls at the feedlot. For the person selling feeder calves, premiums for preconditioned calves are small. Any additional feed needs to produce enough extra gain to pay for the feed. High grain creep feeds are not normally utilized very efficiently. Some success has been reported with salt limited cottonseed or soybean meal fed during the last few weeks prior to weaning.

There are management practices that each producer can use to improve the predictability and value of his calves. Some of these, like implanting, pay off with added weight gain. Some, like castration and dehorning, improve the marketability of cattle. Some, like vaccination and herd health programs are important in establishing the reputation of a producer and the reputation of cattle from an area with buyers.

In Georgia, the Georgia Cattleman's Association with cooperation from The

University of Georgia Cooperative Extension Service, sponsors two programs to help improve marketability of Georgia cattle.

The Georgia Beef Challenge allows producers to retain ownership on groups of five steers in the feedlot. Cattleman receive information on how their calves perform at the feedlot and they receive carcass data on the cattle. This program helps cattlemen gauge the type of feeder calves they are producing. The second program is the Georgia Pride program. Cattlemen can tag calves with special ear tags based on completion of certain management practices. In Table 4 required management practices include some of those mentioned above. The aim of this program is to improve the reputation of Georgia cattle and to give buyers a way to identify cattle that have received certain treatments.

Table 5 lists the results of teleauction sales for one day in the fall of 1993. This table indicates how individual producers have been successful in improving market prices by grouping calves, carrying out certain management practices and most important, making buyers aware of the treatment these cattle received.

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Breeding Season	Days	Wean Date	Average Age	Average Weight
4/1 - 8/1	120	9/8	190	450
4/1 - 7/1	90	9/8	205	480
4/1 - 6/15	75	9/8	213	490

Assumes 70# birth weight and 2.0 ADG

Item	Sick	Non-Sick
Head in	347	1,235
Deads	10	6
% Death loss	2.9%	.5%
In-weight, lbs	579	596
Out-weight, lbs	1,148	1,183
In-value/cwt	\$79.61	\$78.77
Out-value/cwt	\$77.43	\$79.67
ADG, lbs	2.68	2.88
Cost of gain/cwt	\$59.67	\$50.36
Treatment cost/head	\$27.36	0
Profit/head	\$85.15	\$176.38
% Choice	28%	40%
% Select	70%	55%

Table 3. Shrink in Feeder Cattle	
Conditions	Percent Shrink
8 hour drylot stand	3.3
16 hour drylot stand	6.2
24 hour drylot stand	6.6
8 hours in truck	5.5
16 hours in truck	7.9
24 hours in truck	8.9

Table 4. Guidelines for Georgia Pride Certification Program		
White Tag Level	Red Tag Level	Blue Tag Level
<ul style="list-style-type: none"> ◆Identify Breed or Breed Cross of Sire and Dam ◆Male Calves are Steers (and healed) ◆Polled or Dehorned (and healed) ◆Nursing-calf Vaccinations-see local veterinarian ◆Heifers are Open and Brucellosis Calfhood Vaccinated ◆Georgia Cattlemen's Association Member ◆Attended a Beef Quality Assurance Program 	<p>All White Level Criteria, plus:</p> <ul style="list-style-type: none"> ◆Control Breeding Season ◆Registered Bulls With EPD's 	<p>All White and Red Level Criteria, plus:</p> <ul style="list-style-type: none"> ◆Calves Weaned Minimum 30 days, Pre-conditioned ◆Feed and Water Trough Broke ◆Vaccinated for IBR, PI-3, BRSV, BVD, H.Somnus (see local vet) ◆External & Internal Parasites Controlled ◆Feedlot and Carcass Information Available (Beef Challenge, Retained Ownership, Other)

Table 5. Premiums for Calves Sold in Georgia Farm Bureau Teleauctions on September 1, 1993 Compared to Auction Market Prices for the Same Day

Lot	No./Sex	History	Wt.	Price	Premium
1	90S	Beef Challenge GA Pride (Red)	564	\$93.25	\$7.38
2	89H	Beef Challenge	531	87.80	5.80
3	55S	IBR/P13, 7-Way	641	87.50	4.67
4	74S	Beef Challenge GA Pride (Blue)	533	94.60	8.73
5	60H	Beef Challenge	493	88.30	6.30
6	67H	Beef Challenge	772	81.80	6.97