

THE RELATIONSHIP OF VISUAL APPRAISAL TO ANIMAL PERFORMANCE AND CARCASS PARAMETERS

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Story in Brief

One hundred eight feeder steers averaging 834 lb were visually scored (scores of 1 being undesirable and 3 being desirable) at feedlot processing for frame size, body capacity, fatness and health to estimate subsequent animal performance parameters. Stocker and feeder cattle are evaluated by these parameters. Prices are based on how "tall", how "thick", how "fleshy" or how "fresh" cattle appear. This trade jargon translates to the parameters of frame size, body capacity, fatness and health, respectively. The carcass value and frame size correlation of .39 was the only relationship which showed any potential to predict animal performance. All other correlations were less. The correlation between visual appearance and the economically important traits in beef feeder cattle of average daily gain, feed conversion and carcass quality is quite low.

(Key Words: Feedlot, Visual Appraisal, Performance, Carcass Parameters.)

Introduction

The pricing of beef cattle functions on average values. Feeder cattle prices are established within a relatively broad range based on visual appeal and body weight. These price ranges may be as much as \$15 per hundred weight and vary with geographic area of the United States. The \$15 per hundred weight price spread noted in feeder cattle is narrowed to a \$1-\$2 per hundred weight spread on slaughter steers. Slaughter cattle are also merchandised on averages. The finish feeding period upgrades the perceived value of the feeder animal and this animal is now merchandised on estimated carcass yield and estimated percent of Choice grade animals in a lot.

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There are large variations in feedlot performance in each pen of cattle. These differences occur in lots of animals from all geographic origins and genetic backgrounds. The purpose of this study was to attempt to correlate commonly used visual appraisal terms of feeder animals with subsequent economically important feedlot performance and carcass parameters.

Materials and Methods

One hundred eight steers of Angus, Brahman x Angus, Angus x Brahman-Angus and Simmental x Brahman-Angus ancestry weighing 834 lb were removed from fescue pastures that were either endophyte infected, clover mixes or endophyte free and shipped approximately 435 miles to the H.C. Hitch feedlot, Guymon, Oklahoma. The cattle were shipped at night to minimize the heat stress effects of the endophyte infected fescue. The cattle were rested 24 hours, individually weighed and routinely processed into the feedlot. The steers were visually scored at random by three individuals as they were released from the processing chute. The parameters used were frame size (small-1, medium-2 and large-3), body capacity (small-1, medium-2 and large-3), health score (sick-1, stressed-2, healthy-3), and fleshing score (thin-1, average-2, fleshy-3).

The steers were moved through the standard step-up ration program used in the H.C. Hitch feedlot. Final weights were taken on day 117 and were shrunk 4%. The steers were then trucked approximately 60 miles from the feedlot to Booker Custom Pack, Booker, Texas for slaughter. Carcass data were obtained at slaughter, and final weights (carcass adjusted) were carcass weight/.62.

The r and r^2 values resulting from the statistical analysis of the relationship between the visually determined parameters and performance parameters are shown in Tables 1 and 2. The steers were scored for the parameters of frame, body capacity, fleshing and health by three individuals. The data were analyzed individually, then combined. Frame (FR) was scored on the basis of the animal being small, medium or large framed. The body capacity (BC) parameter involved the evaluation of thickness and depth as an indicator of the ability of an animal to consume feed. This assumes that a deep thick animal will have the capability to consume more feed than a shallow thin animal. Fleshing score (FS) is based on the observation that an animal showing signs of fat will be less efficient than a thin animal with a large frame, commonly called a "green" animal. Health score (HS) ranged from healthy to sick. The latter category would include animals that appeared to be stressed and presumed to be a health problem.

Table 1. Correlation coefficients (r) of visual appraisal with performance parameters^a.

	Evaluator			
	1	2	3	combined
ADG X FR ^b	.11	.21	.10	.18
ADG X BC ^c	-.16	.08	-.09	-.10
ADG X FL ^d	-.10	-.25	-.28	-.32
ADG X HS ^e	-.05	-.07	.04	-.05
CADG X FR	.26	.28	.11	.29
CADG X BC	-.24	.17	-.13	-.13
CADG X FL	-.21	-.21	-.19	-.32
CADG X HS	-.08	.09	.10	.05
PRICE X FR	-.14	-.20	-.21	-.24
PRICE X BC	.12	-.21	-.03	-.06
PRICE X FL	.11	-.06	-.08	.07
PRICE X HS	-.04	-.02	-.03	-.04
VALUE X FR	.35	.41	.11	.39
VALUE X BC	-.07	.34	.07	.16
VALUE X FL	-.13	.06	.23	.08
VALUE X HS	.08	.32	.23	.32

^aADG is average daily gain based on final weight, CADG is average daily gain based on carcass adjusted final weight, PRICE is value/cwt and VALUE is total carcass value.

^bFrame Score.

^cBody Capacity.

^dFleshing Score.

^eHealth Score.

Table 2. Coefficients of determination (r^2) relationships with performance parameters^a.

	Evaluator			
	1	2	3	combined
ADG	BC ^c .0255	FS-FR ^b .1122	FS ^d .0775	FS .1021
CADG	FR-BC .0954	FR-FS .1299	FS .0378	FS-FR .1565
VALUE	FR .1202	FR-HS ^e .2059	HS-FR .0977	FR-HS-BC .2444

^aADG is average daily gain based on final weight, CADG is average daily gain based on carcass adjusted final weight, PRICE is value/cwt and VALUE is total carcass value.

^bFrame Score.

^cBody Capacity.

^dFleshing Score.

^eHealth Score.

Results and Discussion

The combined correlations for gain with BC, FR, FS and HS are, -.10, .18, -.32 and -.05, respectively (Table 1). When average daily gain is expressed on a carcass determined basis, these same parameters produce correlations of -.13, .29, -.32 and .05, respectively. All these correlations are so low that the differences in performance are either not influenced by the parameters which were estimated or the scoring system used was not sufficiently precise to detect differences.

When price (value per cwt) or carcass value are related to the parameters of body capacity, frame, flesh score and health score, correlations of -.06, -.24, .07 and -.04 with price, respectively, and correlations of .15, .39, .08 and .32 with carcass value, respectively, were observed. These values suggest a frame size, carcass value interaction. Carcasses weighing over 900 lb and under 500 lb are discounted in the beef trade. The economic consequence of this relationship may be negative under current market conditions.

When the evaluator scores were combined, there was a r^2 of .24 between the parameter of carcass value and frame score, health score and body capacity (Table 2).

These data were obtained from a group of cattle from a pasture study in which there had been statistically significant differences in animal performance, (Lusby et al., 1988). Compensatory feedlot gain and the need for a 1 to 9 rather than a 1 to 3 evaluation scale may have contributed to low correlations.

Literature Cited

- Lusby, K.S. et al., 1988. Effects of fescue endophyte on subsequent feedlot performance of steers. *J. Anim. Sci.* 66(Suppl. 1):57(Abstr.).