



Characterization of Boxed Beef Value in Angus Sires

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Story in Brief

The OSU Boxed Beef Calculator was used to generate closely trimmed boxed beef value on 356 progeny produced by 16 sires. Wholesale prices reflected a 2-yr average (1995 to 1996) for 19 boxed beef items and five quality grade categories. Nonconforming carcasses (i.e., YG 4.0 or >) were priced separately. Differences among sires for boxed beef value were significant and ranged from \$105.60 to \$120.56/cwt carcass weight. An industry benchmark was established as 750 lb, U.S. Choice, YG 3.0, dressing 63.0% for \$108.63/cwt. Average mean value deviations for sire progeny groups relative to this industry benchmark ranged from -\$3.03 to \$11.93/cwt. Progeny carcass weight means also differed by sire and were used to weight closely trimmed boxed beef value/cwt. Absolute values for progeny by sire ranged from -\$14.93 to \$65.89 compared with the industry benchmark of \$814.73. Sire rankings based on closely trimmed boxed beef value (\$/cwt) changed when value was expressed on an absolute basis (weighted for actual carcass pounds produced). Absolute differences in boxed beef value represent a more industry applicable picture of profit potential for sire groups and reinforces the importance of a multiple-trait systems approach.

(Key Words: Beef Cattle, Carcass, Value.)

Introduction

Targeted beef production to enhance consumer satisfaction is gaining momentum among all segments of the industry. As the beef industry works to increase market share of its products, performance information and planned breeding strategies become increasingly important to the cow-calf producer. Increased interest in breed strengths and application of expected progeny differences (EPD) require a fast-paced seedstock industry. Seedstock producers are planning aggressive breeding programs to meet future bull buyer needs and to remain competitive. The American Angus Association National Sire Evaluation Report (1997) includes EPDs for percent retail product. The use of a cutability equation to predict percentage retail product allows for simultaneous consideration of relative fatness and muscling instead of independent assessment of the latter two traits. These EPDs are valuable for comparing the expected difference in average cutability of future progeny from bulls.

One of the more difficult areas to make genetic improvements based on Audit findings is in the area of enhancing taste and tenderness. Genetic tools for enhancing product quality and palatability are limited. Identification of genetic combinations to produce offspring in the upper 2/3 U.S. Choice or better categories (i.e., Certified Angus BeefTM) are hindered by limited bull selection tools for quality and tenderness. Marbling EPDs are based on progeny data available in the particular breed association and are used to predict differences in average marbling score of future offspring. A challenge to seedstock and commercial cow-calf operators is to balance quality and red meat yield. Results from the American Angus Association database show a genetic correlation of nearly zero, indicating that selection for marbling does not hinder improvement in percent retail product. However, the ability to identify sires whose progeny excel in both quality grade and red meat yield remains challenging. Too often, sizeable improvements in progeny marbling deposition are accompanied with excess external and seam fat, small ribeyes, or both. What if a multiple trait approach was available to appropriately weight quality grade, red meat yield, and carcass weight simultaneously?

Materials and Methods

The potential exists to generate a genetic value by combining quality grade and red meat yield attributes into one selection tool. The Oklahoma State University Boxed Beef Calculator (Gardner et al., 1996) may be used to generate closely trimmed boxed beef values for every

individual carcass record on progeny of bulls. The Calculator is designed to utilize individual carcass weight, quality grade (5 levels: Prime, Premium Choice, Choice, Select, or No Roll), yield grade (nearest 0.1 yield grade; 1.0 to 5.0), and dressing percentage (individual or lot) to generate closely trimmed boxed beef values in dollars per hundred pounds of carcass weight. Through the use of a 1995-96 price database (average of the top three packers) for wholesale subprimals (19 boxed beef items), premiums and discounts are derived relative to a base value or industry par for carcass merit. Seasonality of prices exists; however, the extensive price database allows average quality grade and yield grade spreads to be generated. In the future, more detailed prices can be provided if cattle marketing endpoints and seasonal time frames are known.

Wholesale prices reflected a 2-yr average (1995 to 1996) for the 19 boxed beef items. A base price was established for a 750 lb, U.S. Choice, Yield Grade 3.0 carcass with a dressing percentage of 63.0 (\$108.63/cwt) and nonconforming carcasses were priced separately (carcasses with YG 4.0 and greater were discounted \$15/cwt from the base). All progeny met the acceptable carcass weight window (550 to 949 lb) and there were no dark cutters. The average closely trimmed premiums/discounts (\$/cwt) relative to the base price for quality grades and additional yield grades were: Prime = +\$23.46, Premium Choice = +\$4.30, Select = -\$8.03, No-Roll = -\$8.79, YG 1 = +\$16.27 and YG 2 = +\$7.24.

Data provided by Rishel Angus, North Platte, NE, consisted of 356 steer progeny carcass records representing 16 Angus sires. Each sire had 10 or more progeny records included in the data set. Boxed beef values (\$/cwt) were generated for all steers. Table 1 presents the characteristics of data processed using the OSU Boxed Beef Calculator. Boxed beef value was analyzed using a mathematical model accounting for harvest date and sire. Least squares means for sire were plotted against an industry par boxed beef value (Low Choice, Yield Grade 3.0, 750 lb carcass weight, dressing percentage 63.0%, closely trimmed boxed beef value of \$108.63/cwt).

Results and Discussion

Significant sire variation existed for boxed beef value (\$/cwt carcass basis). Figure 1 reflects the closely trimmed boxed beef value (\$/cwt) means by sire on a carcass basis. Mean progeny values by sire ranged from \$105.60 to \$120.56/cwt. An industry par (Low Choice, Yield Grade 3.0, 750 lb carcass weight, dressing percentage 63.0%, closely trimmed boxed beef value \$108.63/cwt) line is included on the graph for comparison. Sire differences, after accounting for harvest date variation ($P < .01$), were highly significant ($P < .01$).

Figure 2 illustrates the mean value difference between sire progeny group averages and the industry par. Sire progeny mean differences ranged from -\$3.03 to \$11.93/cwt carcass weight relative to the industry par. The boxed beef value differences among sires assume performance at various production stages has been optimized. As with percent retail product, extreme differences in carcass weight, for example, would influence the overall profitability differences between sire progeny groups.

Progeny carcass weight means (Figure 3) differed ($P < .01$) by sire. Figure 4 depicts the closely trimmed boxed beef values (\$/head) weighted for carcass weight of progeny groups. Absolute values for progeny by sire ranged from -\$14.93 to \$65.89 compared with the industry benchmark of \$814.73 (750 lb, U.S. Choice, YG 3.0, 63.0% dress). Absolute differences in boxed beef value represent a more industry applicable picture of profitability potential for sire groups and reinforces the importance of a multiple-trait systems approach. Note that sire rankings based on closely trimmed boxed beef value (\$/cwt) changed when value was expressed on an absolute basis (based on actual carcass weight produced).

Implications

It is important to recognize that, as with other EPDs, the values are assuming performance at various production stages has been optimized. As with percentage retail product, extreme differences in carcass weight, for example, would influence the overall profitability difference between sire progeny groups. Breeds with interest in carcass merit should consider the

development of genetic values to assess profitability using a progressive carcass value determination system.

Literature Cited

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Gardner, T.L. et al. 1996. Okla. Agr. Exp. Sta. Res. Rep. P-951:31.

Acknowledgements

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Item	Mean	Minimum	Maximum	SD
Carcass wt, lb	748	554	920	66.74
Yield grade ^a	2.95	1.7	4.8	.57
Quality grade	2.47	1	5	.71
Live \$/cwt	70.59	58.99	87.53	4.77
Carcass \$/cwt	112.06	93.63	138.94	7.57

^a Quality Grade: Categories used in the Boxed Beef Calculator where 1=Prime; 2=Upper 2/3 Choice; 3=Low Choice; 4=Select; 5=No Roll.



Figure 1. Closely trimmed boxed beef value (\$/cwt) means by sire (carcass basis).

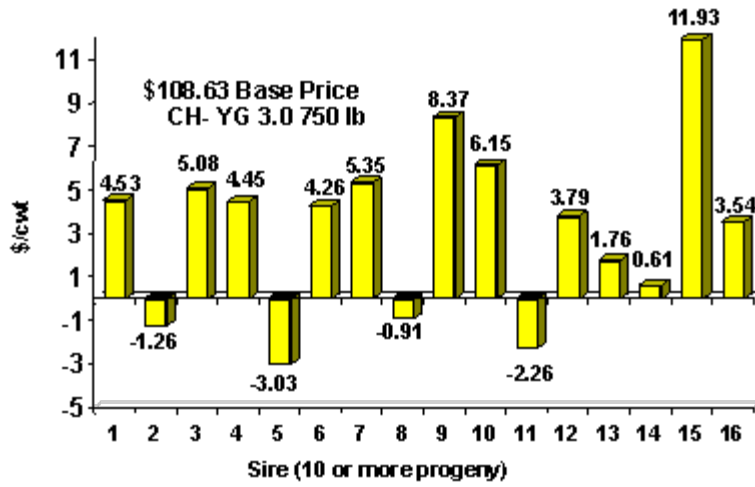


Figure 2. Closely trimmed boxed beef mean difference by sire (carcass basis).

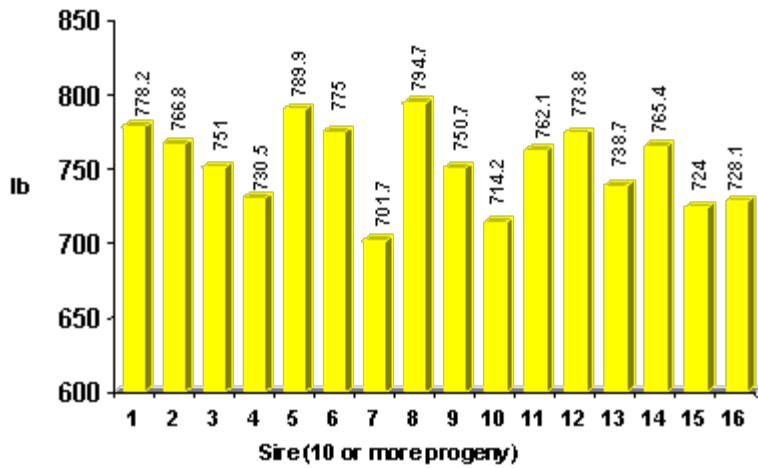


Figure 3. Progeny carcass weight means by sire (carcass basis).

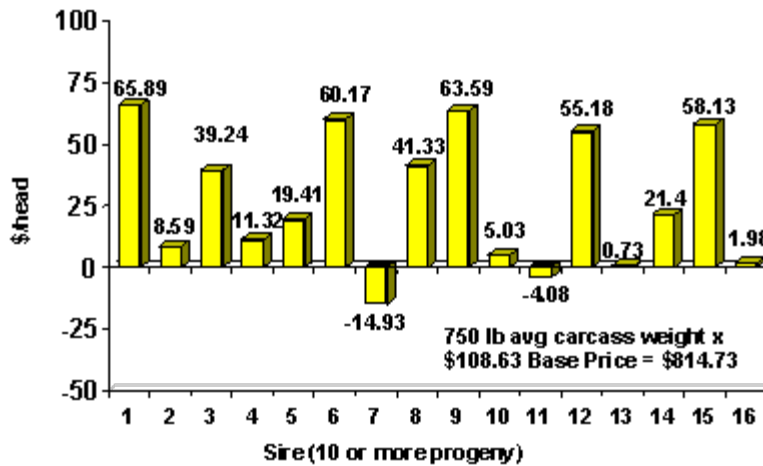


Figure 4. Absolute value difference (\$/head) for closely trimmed boxed beef value by sire.

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