

January Browsing

CHARACTERISTICS OF THE MAJOR BEEF BREEDS

The U. S. D. A. Meat Animal Research at Clay Center, Nebraska, beginning in the late 1960s, has evaluated around 30 breeds of cattle in their Germ Plasm Project. Their latest report (J. Animal Sci. 83:196) compared crossbred steers sired by the seven *Bos taurus* breeds with the largest number of registrations. These included three British breeds, Angus (A), Hereford (H), and Red Angus (R), and four Continentals, Charolais (C), Gelbvieh (G), Limousin (L), and Simmental (S). All of these breeds except R had been evaluated in earlier phases of the project. Sires included a sample from among the top 50 in registrations within the breed as well as young, unproven sires. There were from 20 to 23 sires per breed. Traits were mathematically adjusted to slaughter end- points of the same age (445 days), carcass weight (800 lb), fat thickness (0.43 in) , or marbling (Small35).

This paper and other recent reports by the U. S. Meat Animal Research Center indicate that, compared to some 30 years ago and depending on slaughter end-point, there is now little if any difference between British and Continental breeds in body size and rate of gain. However, in this latest work, important differences still existed in body composition. Fed to the same age or weight, Continentals tended to have less fat and, regardless of end-point, larger ribeyes. So, unless fed to the same fat thickness or marbling, Continentals had superior Yield Grades. While the industry often distinguishes between British and Continentals when characterizing marbling and Quality Grade, in fact Herefords were similar to Continentals, and Angus/Red Angus were clearly superior in these traits. While there were some statistically significant differences in eating quality, these differences tended to be small and would probably not be of much economic importance if beef was marketed on actual palatability factors.

Traits are discussed in detail below. Where differences or lack of differences are mentioned, they are based on tests of statistical significance in the paper.

Days on Feed - There was little difference in days on feed to the same weight, breed-averages ranging from 225 to 246 days. To reach the same fat thickness, days on feed ranged from 206 to 277 and A, H, and R required fewer days. To the same marbling, the range was from 190 to 279 days and Hereford required almost as much feeding time as the four Continentals.

Live Weight - At the same age, breed-average live weights ranged from 1282 lb to 1362 lb: L were lighter than all but G and H; G were lighter than A, C, and S; and A, C, L, R, and S did not differ. At the same fat thickness average weight ranged from 1258 lb to 1430 lb: the three British breeds were lightest, Limousin were intermediate, and C, G, and S were heaviest. But at the same marbling (average weight ranging from 1199 lb to 1399 lb), A and R were lightest, H intermediate, and the four Continentals heaviest.

Fat Thickness - Slaughtered at the same age or the same weight, the British breeds were fatter, averaging 0.50 in to 0.57 in, while Continentals had 0.30 in to 0.38 in. At the same marbling, the range was from 0.38 in to 0.56 in: all but L were leaner than H; R were leaner than L; and there

was no difference within A, C, G, and S.

Ribeye Area - Whether the end-point was age, weight, fat thickness, or marbling, the British breeds (12.2 to 12.8 sq in) were smaller in ribeye than the Continentals (13.4 to 14.0 sq in). Within British, A tended to be larger and R smaller. Within Continentals, G tended to be smaller and Limousin larger. However, differences were small within the two types.

Yield Grade - Comparisons of Yield Grade varied depending on the slaughter end-point. At the same age or weight, British had numerically higher (3.2 to 3.4), poorer YG, while Continentals were lower (2.3 to 2.7). At the same fat thickness, as might be expected, there were no differences in YG. However, at the same marbling, H were higher (3.5) than all other breeds (which ranged from 2.7 to 3.1).

Yield Grade Discounts - Yield grades of 4.0 or higher receive meaningful price discounts. At the same age or weight, British had more 4.0 or higher (17 % to 21 %) compared to Continentals (1 % to 7 %). But at the same marbling, H (23 %) had more discounts than other breeds. Differences within the other six breeds were not significant, but A (9 %) and R (7%) tended to be lower than the Continentals, which ranged from 11 to 15%.

Marbling - At the same age, A (Sm84) and R (Sm90) had higher marbling than the other breeds, which ranged from Sm04 to Sm27. At the same weight, the same relationships held with A at Sm66, R at Sm 83, and the other five ranging from Sm03 to Sm24. But at the same fat thickness, there was no difference among A, R, C, G, L and S (Sm25 to Sm66), except that R were higher than L; H (Sm05) were lower than all but L and G.

Percent Choice - At the same age or weight A and R had higher percent Choice (81% to 90%, depending on end-point) than H, C, G, L, and S (which ranged from 57% to 66%). There was no difference among the latter five breeds. But at the same fat thickness, there was no difference among A, R, C, G, L, and S, except that R (79%) had more than L (65%). H (57%) had less than A, R, C, and S (which ranged from 68% to 74%).

Shear Force - At the same age, A, H, and R had less shear force (greater tenderness) than G. At the same weight, R was lower than the four Continentals and A and H were lower than G. At same fat, A, H, and R were lower than the Continentals. At the same marbling, A and R were lower than the other five breeds, and H were lower than G.

Taste Panel - At the same age, A and R were more tender than G. At the same weight, A, H, R, and S were more tender than G. At the same fat, A, H, and R were more tender than C and G. At the same marbling, A and R were more tender than C, G, and L. At the same age and weight, A and R were juicier than C and G. But at the same fat or marbling there were no differences among any of the breeds in juiciness. And there were no differences among the breeds in flavor intensity regardless of slaughter end-point.