The use of ultrasound to evaluate growth and carcass quality in Nelore Cattle

Fabiano Araujo (1,2); Fernando Manicardi (3); José Roberto Hofig Ramos (4); Cláudio De U. Magnabosco (1,5); Thomas R. Famula (1) and Roberto D. Sainz (1)

This study was carried out to support the development of Expected Progeny Differences (EPD) for carcass traits in Nelore cattle raised in ranches (OB Ranch and HoRa Ranch) under tropical grazing systems. Data from 1,721 bulls and heifers raised in central Brazil were collected at approximately 15, 18, 21 and 24 months of age. The animals were weighed (BW) and scanned for longissimus muscle area (ULMA); backfat thickness between the 12th and 13th ribs (UFAT); and fat thickness over the rump (URFAT), at the P8 site. Mean (and SD) scan data were: Age, 19 (SD 2.6) months; BW, 321 (SD 58) kg; ULMA, 47.80 (SD 8.85) cm2; UFAT, 1.5 (SD 0.62) mm; URFAT 2.0 (SD 0.97) mm. Data were analyzed using the MIXED procedure of SAS (SAS Institute, Cary, NC). Fixed effects were age in months (AGEm), month of scanning (MONTH), contemporary group (including management group; CG*MG). The interaction between AGEm and MONTHSCAN was used to test the slopes for homogeneity, and the individual animal within contemporary and management group was included to account for repeated measures on the same animal. A large portion of observed variance in response variables was accounted for by GC*MG and AGEm ($P < 0.001$). Month of scanning (i.e., season) had no effect on BW or ULMA ($P > 0.05$) when the contemporary and management groups were properly accounted for. UFAT was not significantly influenced by MONTH or by AGEm ($P > 0.05$), nor was there any significant AGEm ´ MONTH interaction. By contrast, URFAT was significantly affected by AGEm ($P < 0.01$), indicating that it is a more sensitive fat deposit. The repeatabilities of measurements were very low for UFAT (0.035) but moderate for URFAT (0.62) and ULMA (0.44). Nelore cattle raised on tropical pastures exhibit growth patterns and carcass compositions that are very different from those observed in Bos taurus cattle raised on high-concentrate diets, but once the contemporary group and management were accounted for, seasonality had no effect on carcass traits and body weight.

---

(1) University of California, Davis, CA, USA

(2) Aval Serviços Tecnológicos S/S, Uberaba, MG, Brazil

(3) Grupo OB, Pontes e Lacerda - MT, Brazil

(4) Grupo HoRa, Cornélio Procópio - PR, Brazil

(5) National Research Center for Cerrados System, Brazilian Agricultural Research Corporation, EMBRAPA CERRADOS/ARROZ E FEIJÃO/Bolsista CNPq, P.O. 08223, 73301-970, Planaltina, Brasilia-DF, Brazil