

ABSTRACT

Effects of breed and sire on carcass characteristics and fatty acid profiles of crossbred wagyu and angus steers

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In a two-year experiment, 54 steers sired by seven Wagyu bulls [American Wagyu Association (AWA) sire numbers 331, 384, 388, 411, 429, 433 and 488] and 15 steers sired by two Angus bulls, all out of Angus-Hereford cows, were used to evaluate the effects of sire and breed on carcass characteristics and fatty acid composition. Steers were given ad-libitum access to a high-concentrate diet (15 % alfalfa cubes and 85 % barley supplement) for at least 170 days. Breed and individual sire effects were analysed. Wagyu-sired steers had higher marbling, maturity and quality scores, more estimated kidney, pelvic and heart fat, larger longissimus dorsi muscle areas, lower fat thicknesses and yield grades than Angus-sired steers ($p < 0.05$). Steers sired by 388, 411 and 433 had lower fat thicknesses than steers sired by Angus, 429 and 488 ($p < 0.05$). Steers sired by 384 and 388 had higher marbling scores per cm subcutaneous fat than steers sired by Angus, 429 and 488, and lower fat thickness per 100 kg of carcass weight than Angus-sired steers ($p < 0.05$). For both subcutaneous fat and longissimus dorsi muscle, Wagyu-sired steers had higher ($p < 0.05$) percentages of 14:0, 14:1, 16:0, 16:1, and lower percentages of 18:0 than Angus-sired steers. The genetic differences in carcass characteristics among Wagyu sires may enable us to select for improved marbling with less fat in the Wagyu breed. Some statistically significant ($p < 0.05$) but small differences existed in fatty acid profiles between breeds and among sires.