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Effect of sow genotype on pork carcass and meat traits

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This study aimed to evaluate pork carcass and meat traits of pigs from alternative genotypes in comparison with pigs produced by sows of commercial genotypes. The experiment was carried out at Embrapa Swine and Poultry, Concórdia-SC, Brazil, with 346 pig carcasses from six genotypes (MO x MO, MS x MO, MS x CG, MS x LDLW, MS x LDLWMO and MS x LWMO). In the week the pigs reached 115 kg of live weight they were slaughtered with 15 hours of fasting in a commercial slaughterhouse. The studied traits were live slaughter weight, hot carcass weight, pH at 45 minutes and at 24 hours, cold carcass weight, back fat thickness at first rib, weight of whole parts, skin, fat, meat and bone, meat color, drip loss, marbling score, intramuscular fat and some calculated traits. After slaughter carcass tipification was made with an optic scanner through measurement of backfat thickness at first rib and loin depth to estimate lean percent, which together with the hot carcass weight contributed to estimate the carcass bonus. At that time the pH 45 minutes was evaluated and then the carcasses were stored in the cold chamber for 24 hours. In the next day the pH 24 hours, color score (visual and Minolta) were evaluated and loin and leg samples were collected to evaluate drip loss and intramuscular fat (the average of two samples was used in the data analysis) and then the ten female and the ten male half carcasses closest to the genotype average (total of 120 carcasses) were separated in whole parts (rear leg, front leg, loin and belly), weighed and dissected in skin, fat, meat and bone. Meat from rear leg and loin were evaluated using Minolta color and also through visual appraisal from 1 to 4. Marbling was evaluated in scores from 1 to 4 and also through ether extract from a loin sample. Data were submitted to anova using the model Y = M + farrowing lot(L) + sex(S) + genotype(G) + LxS + LxG + SxG + covariate slaughter weight + residual, where Y = dependent variable, M = the mean average effect and the other terms are self-explanatory. There was significant effect L, S and G and of the interaction LxG on some the studied traits. Castrated males presented more fat and less meat in the carcass than females. Carcass weight ranged from 75.1 kg in MO x MO to 77.4 kg in MS x CG. The carcass yield ranged from 68.7% in MO x MO to 71.6% in MS x CG. The lean percent ranged from 52.9 in MO x MO to 58.6% in MS x CG. The backfat thickness ranged from 15.7mm in MS x LDLW to 24.2mm in MO x MO. The carcass bonus ranged from 95.5% in MO x MO to 105.53% in MS x CG with the other genotypes being in between. Carcass value ranged from R$ 242.20 in MO x MO to 272.10 in MS x LDLW. The marbling score ranged from 1.19 in MS x CG to 2.32 in MO x MO and the loin ether extract ranged from 1.30% in the MS x LDLW to 3.26% in MO x MO. MS x LDLWMO pigs were in an intermediary position between the extreme genotypes (70.75% carcass yield, 58.14% lean, 16.30mm backfat, 1.45% marbling score and 2.21% ether extract - intramuscular fat), not being different from the majority of productivity indicators, and on the other side presenting better indicators of meat quality than the most productive genotypes. It is possible to improve marbling in pork by using female lines of proved marbling superiority.

Keywords: crossbreeding, male line, female line, sex, lean, marbling.