

Effect of family and birth type on weight and yield of carcass in Santa Ines breed

Nathalia F. Pita*¹, Adriana F. Jucá¹, Geraldo M. Melo-Filho¹, Larissa K. S. A. Martins¹, Lucas F. A. Bulcão, Evandro N. Muniz², Luís F. B. Pinto¹

*Av. Adhemar de Barros, 500, 40170-110, Salvador, Bahia, Brazil

¹Federal University of Bahia, Animal Science and Veterinary Medicine School

²Embrapa Tabuleiros Costeiros

* nathalia_pita@hotmail.com

Family is a random effect few studied in animal science, except for animal breeding purpose. However, this can be a serious mistake, because the F-test in analysis of variance (ANOVA) depends on residual variance, which may be poorly estimated if family effect is important, but no inserted in the statistical model. Thus, this study aimed to test family effect on weight and yield of carcass in Santa Ines breed. Hot and cold carcass weights, hot and cold carcass yield, were measured on 102 carcass of lambs raised on pasture in semiarid region of Sergipe State, Brazil. The statistical model included the fixed effects of birth type (one or two lambs per birth), the covariates animal's age and dam's weight at weaning, and the random effect of family (sire nested dam). Hot and cold carcass weights, hot and cold carcass yield, were measured. The family effect was significant for cold carcass weight ($P = 0.0456$), hot ($P = 0.0205$) and cold ($P = 0.0138$) carcass yields, while the birth type was not significant for any trait. Average values for: hot carcass weight (15.7 kg), cold carcass weight (15.3 kg), hot carcass yield (43.0%), cold carcass yield (41.9%) were estimated. Family effect when inserted in the model improved the coefficient of determination in ANOVA, because your values were larger than 0.95 when family effect was inserted and less than 0.30 in other case. Finally, the flock studied here has large residual variance percentage for weight and yield carcass traits explained by the sires and dams. This source of variation is not fit in several studies in animal science and the consequences are biased estimates of residual variance in ANOVA, which may leads to errors in the F-test. Furthermore, the least square means and effects may be biased too.

Keywords: ANOVA, dam, fit, ovine, random, sire

Acknowledgments: the authors thanks the EMBRAPA Tabuleiros Costeiros to provide the infrastructure and animals; CNPq by doctoral scholarship (SWP311262/2010-4) and financial support to the projects (562551/2010-7) and (474494/2010-1); to FAPESB by the financial support to the project (5803/2009); and to PIBIC/UFBA by the scholarships for undergraduate students.