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**THE GENETIC PARAMETERS FOR AVERAGE DAILY GAIN AND KLEIBER RATIO IN
CHAROLAISE BREED**

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Abstract: The objective of this paper was to estimate the genetic parameters for average daily gain from 200 days to 365 days and Kleiber ratio in Charolaise breed with maternal animal model. The data were represented by 582 records of Charolaise cattle breed. The pedigree consisted in 1284 cattle: 123 sire, 579 dams and 582 cattle with performances. The data were obtained from Romanian Breeding Association for beef cattle. The direct breeding value of cattle were from -0.339 to 0.969 kg for average daily gain between 200 days and 365 days and maternal breeding value between -0.361 to 0.207. The direct breeding value of cattle for Kleiber ratio were between -0.318 and 0.678 and maternal breeding value between -0.354 and 0.205. The direct heritability for average daily gain from 200 days to 365 days was 0.570, the maternal heritability 0.183 and the total heritability 0.353. The direct heritability for Kleiber ratio was 0.414, the maternal heritability 0.201 and total heritability 0.189.

• Introduction

The meat production is determinates by the genetic and nutrition factors. Charolais breed is a beef breed with high meat production. Charolais have growth ability, efficient feedlot gains. Charolais are good for growth and uniformity and the ability to fit into any system. The body development of cattle from Charolais breed is good, being one of the large beef breeds. Young cattle achieve great growth gains and are suitable for pasture maintenance. The Kleiber ratio can serve as an indirect indication of feed conversion efficiency, the cattle with higher breeding value are more efficient.

• Material and method

The maternal animal model was (Mrode and Thompson, 2005):

$$y = Xb + Za + Wm + Spe + e$$

y = the vector of observations,
b = the vector of the fixed effects,
a = the vector of the random animal effects,
m = the vector of the random maternal genetic effects,
pe = the vector of the permanent environmental effects and
e = the vector of the random residual effects.
X, Z, W and S are the incidence matrices referring to animal performance, to the fixed effects, to the direct effects, the maternal effects and to the permanent environmental effects

The Kleiber ratio at 200 days was estimated with formula
 $KR = (ADG/BW^{0.75}) * 100$
ADG= average daily gain observed between weight at 200 days and weight at 365 days
BW= the body weight at 365 days

• Results and discussions

The descriptive statistics for studied traits

Trait	Mean ±standard error	Standard deviation	Coefficient of variability (%)
Weight at 200 days (kg)	216.238±1.75	42.24	19.53
Weight at 365 days	366.766±2.278	54.96	14.98
Average daily gain (kg/day)	0.912±0.0103	0.249	27.32
Kleiber ratio (kg/kg ^{0.75})	1.084±0.009	0.223	20.615
Metabolic live weight at 200 days	83.635±0.388	9.369	11.202

The genetic parameters for the traits

Item	Average daily gain	Kleiber ratio
σ_a^2	0.0254	0.0193
σ_m^2	0.0081	0.0093
σ_{am}	-0.0091	-0.0101
σ_{pe}^2	0.0175	0.0252
σ_e^2	0.0026	0.0028
σ_p^2	0.0445	0.0466
c^2	0.3932	0.5407
σ_{am}/σ_p^2	-0.2056	-0.2167
h_a^2	0.570	0.414
h_m^2	0.183	0.201
r_{am}	-0.636	-0.752
h_T^2	0.353	0.189

• Conclusions

In the Charolais breed the heritability for average daily gain from 200 days to 365 and Kleiber ratio was high. The genetic correlation between direct breeding values of cattle and maternal breeding values for average daily gain and Kleiber ratio was very high. For improvement the meat production and feed efficiency the selection of the cattle for average daily gain and Kleiber it is necessary in Charolaise population.

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