

Magdalena Sobczyńska

Genetic evaluation of racing performance in Thoroughbreds on short and long distances

S u m m a r y

The study aimed at estimating genetic parameters for earnings and rank at finish on short (≤ 1400) and long (≥ 1600) distances of Thoroughbred horses. The problem is whether we can combine the results from all the distances, when estimating breeding value of racing horses with an animal model. Data collected were 14 485 earnings (log) and 21 903 ranks at finish (square

root) of 2389 horses running in races over the years 1998-2005. The model used in analysis included random animal and permanent environmental effects, and age, sex, race, rider and weight carried (as covariate) as fixed effects. Heritability estimates were 0.06, 0.14 and repeatability 0.19 and 0.22 for earnings at long and short distances, respectively. Heritability coefficients for rank at finish were 0.17, 0.22 and repeatability 0.43 and 0.40 at long and short distances, respectively. The genetic and environmental correlations between performances on different distances were high (average 0.9) for earnings and rank at finish. Considering the mean breeding value of the progeny of stallions with 10 or more offspring rank correlations was 0.9, indicating that most Thoroughbred stallions produce horses suited to both long and short distances.