GENETIC ASSOCIATIONS AMONG TRAITS OF THE NEW INTEGRATED BREEDING EVALUATION METHOD USED FOR SELECTION OF GERMAN WARMBLOOD HORSES

Hinni Luehrs-Behnke, Rainer Roehe & Ernst Kalm*
Institut für Tierzucht und Tierhaltung der Christian-Albrechts-Universität, D-24118 Kiel, Germany
* Hermann-Rodewald-Str.6, D-24118 Kiel, Phone: +49 431 880 4363, Fax:+49 431 880 2588,
E-mail:hluehrs@tierzucht.uni-kiel.de

Abstract. In Germany, a new integrated breeding value estimation is based on a multiple-trait animal model, simultaneously considering information from performance test of stallions on station, performance test of mares as well as competition results of sport horses. The objective of this study was to estimate the genetic parameters of the traits used in the integrated breeding evaluation including all German warmblood breeds. The analysed data consisted of 4527, 40670 and 6.000 000 records of performance tests of stallions, mares and of competition results, respectively. Genetic parameters were estimated with a multivariate BLUP animal model. Heritabilities for traits obtained from stallions tested on station ranged from 0.33 (jumping under rider) to 0.51 (trot) and for the traits from mare performance test from 0.27 (walk) to 0.38 (trot). Genetic correlations between corresponding traits recorded on performance test of stallions and mares ranged from 0.87 (canter) to 0.98 (free jumping). Heritabilities of competition traits from horses (build up for sport) were estimated as 0.12 and 0.11 for dressage and jumping, respectively. The use of all traits for estimation of genetic values of horses is expected to reduce pre-selection and it optimal by combines all information resources based on the estimated genetic parameters.

Keywords: genetic parameters; breeding value estimation; selection; horse