

## Analysis of eventing competition results of Hungarian Sporthorses

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The aim of the study was to evaluate the Hungarian Sporthorse population based on eventing competition performance. The database contained the results of 792 horses and 449 riders between 2000 and 2006. The eventing results were gathered from Hungary and other European countries. Blom transformed ranks were used to measure competition performance. Sporthorses competed in fourteen categories but only the easiest category (category 'A') contained enough result to handle it as a single category (model I.). The other 13 categories were handled together based on professional reasons in a different model (model II.). In model III., all records were analysed together and the results were weighted according to the difficulty of the category. The competition results were classified into five groups, each group had a weight (0-4) and it was multiplied by a constant 3, and the result of this formula was added to the original Blom score. The linear mixed models included fixed effects for age, sex, breeder, owner, location, year and random effects for animal and rider. The model II. contained one more fix effect for difficulty of the competition level.

The distribution of number of horses and number of starts by sex were heterogeneous ( $P < 0.05$ ). For category 'A' mares and geldings appeared in higher proportion, on the contrary ratio of stallions is greater in higher competition levels.

Considering the goodness of fit in each model, model fitting to the weighted Blom scores was the best  $R^2 = 0.63$ . In model III. all fix effects (age, sex, breeder, owner, location, year) and random effects for animal and rider were significant. The variance components estimated for the weighted Blom scores were the highest also (0.47 rider effect, 0.82 animal effect and 0.18 the animal x rider interaction effect). The other hand the variance proportion of rider effect exceeded the variance proportion of animal effect in model I. and model II.

Breeding values of eventing performance were

predicted using model III. The reliability of the estimated breeding values was acceptable for only a few stallions. To improve the reliability of breeding values, more progenies should be used in eventing competitions (as a kind of progeny test) and more competition records needed (as a kind of own performance test).

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