



DEVELOPMENT OF A BREEDING VALUE ESTIMATION SYSTEM CONSIDERING EXTERIOR TRAITS



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Introduction

In Germany the genetic evaluation for horses is carried out annually on behalf of the Fédération Equestre Nationale (FN). Several German horse breeding associations supplement these informations by an individual evaluation system. For the two organizations "Pferdezuchtverband Brandenburg-Anhalt" and "Pferdezuchtverband Saxony-Thuringia" such an evaluation system has been developed at the MLU in Halle/ Germany.

Material

The genetic evaluations are based on the performance data from foal and mare inspections as well as on mare performance tests. A total of 26,490 horses entered the analysis. 21 subjective scored traits (Tab. 1) were analyzed with an animal model including the fixed effects age, sex (foal inspection only), kind of test (mare performance testing only), place-year and place-year-season.

Results

Test	Scored traits	N	h ²	
	Type	17,898	0.50	
	Conformation	17,898	0.24	
	Gait	17,898	0.41	
	Breed and sex type	12,069	0.46	
	Conformation*	8,224	0.43	
	Correctness of gaits	12,069	0.16	
	Walk	9,686	0.25	
	Trot	12,067	0.42	
	Canter	2,162	0.49	
	General impression & development	8,045	0.36	
	Walk	2,729	0.29	
	Trot	2,728	0.46	
	Canter	2,729	0.28	
	Rideability	2,699	0.18	
	Free jumping	2,756	0.41	

* resulting of the mean of the sub-traits head, neck, saddle position, frame, forelegs, hindelegs

The genetic correlations between traits from foal inspections and later test results were moderate to high. With values of 0.85 (type-breed and sex type) and 0.82 (conformation foals-conformation mares) there are remarkable relationships concerning type and conformation. The correlations between gaits from foal inspections and the basic gaits ranged from 0.48 to 0.68 (for mare inspections) and from 0.37 to 0.45 (for mare performance test).

The three basic gaits walk, trot and canter are similar within mare inspections and mare performance tests. For comparable traits, values from 0.95 (walk), 0.69 (trot) and 0.83 (canter) have been found.

An comparison of the breeding values from the national evaluation system and the individual evaluation system resulted in correlations between 0.69 and 0.79. (Tab. 2).

Discussion

The results of the parameter estimation confirm those from other studies. The data of the foal inspections can be used as a tool for early selection. Foal inspections give reliable informations especially for type and conformation traits but not for the later jumping ability of a horse. The individual evaluation system yealds reliable breeding values which are a reasonable supplement for the national evaluation.



National evaluation	Correlation	Individual evaluation
Total index Dressage	0,69	Index Dressage
Part index Dressage (MPT)	0,74	Index Dressage
Part index Dressage (MPT)	0,79	ø of the part indices for walk, trot, canter, rideability (MPT)
Part index Jumping (MPT)	0,79	Part index free jumping (MPT)