

New genetic parameters for simultaneous breeding value estimation of production and litter size traits of Large White pigs in Slovakia



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OBJECTIVE

- To estimate new covariance parameters for 7-trait animal model for the most important dam breed of pigs in Slovakia
- Consequences for routine genetic evaluation

DATA AND METHODS



- National performance testing database 1995 to 2005, 220000 field tested animals, 49500 1st litters, 138000 2nd and later litters, 7650 station tested animals

Traits

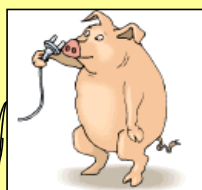
- Field test (production and litter size)** - lifetime average daily gain (ADGFT), ultrasound backfat thickness (BFFT), number of piglets born alive in the 1st litter (NBA1) and number of piglets born alive in the 2nd and later litters (NBA2+)
- Station test (carcass station)** - average daily gain (ADGST), percentage of valuable cuts (VCST), backfat thickness (BFST)

Parameters estimation

- Complex statistical model - 7 traits animal model according to Peškovičová et al. (Livest. Prod. Sci., 77, 2002).
- Simultaneous estimation using VCE package and REML method

CONCLUSION

STUDY PROVED THAT THE MODEL WITH COMPLEX COVARIANCE STRUCTURE SHOULD BE USED FOR ROUTINE GENETIC EVALUATION OF PIGS, CURRENT GENETIC RELATIONSHIPS SHOULD BE TAKEN INTO ACCOUNT WHEN SETTING UP SELECTION GOALS



RESULTS

Negligible genetic correlations between daily gain (field and station) and litter size

Positive genetic correlations between litter size and valuable cuts (0.14 and 0.09) for the 1st and 2nd later litters

Genetic tight between field and station production traits lower when compared to currently used parameters

Genetic correlations between backfat thickness (field and station) and litter size comparable in magnitude and sign (-0.19 and -0.16 for the 1st litter, -0.07 and -0.12 for the 2nd and later litters)



	BFFT	ADGFT	NBA1	NBA2+	ADGST	VCST	BFST
BFFT	0.30	0.08	-0.19	-0.07	-0.11	-0.63	0.72
ADGFT		0.13	-0.01	-0.04	0.42	-0.02	0.02
NBA1			0.11	0.89	0.04	0.14	-0.16
NBA2+				0.12	0.02	0.09	-0.12
ADGST					0.24	0.15	-0.10
VCST						0.46	-0.88
BFST							0.46

Heritabilities and genetic correlations